DOCUMENT RESUME

ED 067 354 SO 004 512

TITLE	A Progress Report of Econ 12: Design and Evaluation of a 12th Grade Course in the Principles of Economics.
INSTITUTION	San Jose State Coll., Calif.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-5-1113
PUB DATE	May 66
CONTRACT	OEC-5-10-068
NOTE	154p.
EDRS PRICE	MF-$0.65 HC-$6.58
DESCRIPTORS	*Course Descriptions; Course Evaluation; Course Objectives; *Curriculum Development; Curriculum Evaluation; Economic Development; *Economic Education; Economics; *Inservice Teacher Education; Instructional Materials; Projects; Secondary Grades; Teacher Education
IDENTIFIERS	*ECON 12

ABSTRACT

This report gives background data and an overview of the development of the ECON 12 project, which was carried out in conjunction with the Developmental Economics Education Program (DEEP) grant from the Joint Council on Economic Education to the Contra Costa County (California) Department of Education. The program and its dissemination were considered a system, made up of three main parts: The ECON 12 course, evaluation instruments and procedures, and a teacher training program. The latter two were considered as vital as the course materials and the cognitive and behavioral objectives. Cooperation from the County Department of Education assured that trial courses and teacher participation contributed to effective course design. Materials are described and stages of lesson development are clarified. A section on teacher training outlines the chronological sequence of a basic introduction to economic theory, practicum sessions, and teacher supervision. The to-date summary indicates positive acceptance of the project during trial tests and satisfaction with the application of system development procedures to the design of the course. At the date of this report, Units I and II were completed (ED 040 100, 101), Unit III and optional units were due for completion in 1967. Revised editions were published in 1968 (ED 053 048, 049). Addison Wesley will be publishing the future editions. (JMB)

OFFICE OF EDUCATION
PROJECT H153 ECON 12
REPORT ON PROGRESS

FAR WEST LABORATORY FOR EDUCATIONAL
RESEARCH AND DEVELOPMENT

ED 067354

Far West Laboratory for Educational
Research and Development

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Office of Education

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Progress Report: DESIGN AND EVAL-

TITLE UATION OF A 12th GRADE COURSE IN THE PRINCIPLES OF ECONOMIC

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~~MAY 31 '67~~	~~Mrs. Klaus~~ 5/31/67

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A PROGRESS REPORT OF ECON 12

DESIGN AND EVALUATION OF A 12TH GRADE COURSE IN THE PRINCIPLES OF ECONOMICS

Far West Laboratory for Educational
Research and Development

MAY, 1966

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A. SYNOPSIS

1. Purpose

Project H-153 is a U.S. Office of Education Cooperative Research Grant to San Jose State College to develop and evaluate a twelfth grade one-semester economics course, suitable for students at all levels of achievement and scholastic ability, to be taught by the average social studies teacher. The course is intended to implement the National Task Force Report of 1961, Economic Education in the Schools, which called for a high school course to develop student capacity for economic reasoning, and made recommendations about the content of such a course.

The project was funded for the period 1 July 1964 to 1 July 1966. The objectives of the grant were to attempt to complete an economics course and all related teacher and student materials, and to evaluate the effectiveness of the completed course. The tentativeness of these objectives reflected the recognition by the Office of Education staff and the principal investigators that probably the project could not be completed within the two-year contract period.

An amendment to the grant extended the purpose of the project to include a summer workshop in the summer of 1965 to train teachers who would make trial use of the course in the spring of 1966. At the present time the Office of Education is considering a second amendment to finance a teacher training workshop this summer, to extend the project through the summer of 1966 and to expand the audio-visual and evaluation programs.

2. Rationale

The need to develop a twelfth grade economics course is summarized by the following arguments taken from the 1961 Task Force Report:

1. The growth in complexity of economic issues demands better economic understanding. (p. 7)

2. There is a need to understand the role which government agencies now play in determing our domestic and international economic policies.

> "In the final analysis, the effectiveness of government depends on the capacity and understanding of the people...If they are to exercise their great political power responsibly and effectively, more of

> our people must know more about our economy and must learn to think about economic issues objectively and rationally." (p. 8)

3. Most of the American people have little training in economics. Only about five per cent of the high school students take a separate economics course. Half of the students study "Problems in American Democracy" which devotes considerable time to the subject but is not based on a theoretical treatment. (p. 8)

4. The economics, whether taught in economics courses or problems courses, is "generally descriptive and all too often dry and sterile." There is little attention given to economic theory or analytic thinking. (p.9)

5. The teaching materials are inadequate. "The treatment in textbooks is mainly descriptive, economic analysis is almost entirely absent; the reasoning often loose and superficial; value judgments of the authors, generally unidentified as such, abound." (p. 9)

6. The teachers are mostly unprepared to teach the subject. (p. 10)

7. There is the problem of public attitudes. Although there has been a growth of interest in economic education, it is not always disinterested.

> "Unfortunately, it is necessary to recognize that many individuals and groups see economics in the schools as a device for stressing their own private views."

Such attitudes make it difficult for teachers to deal with the necessarily controversial issues which arise in the study of economics. (p. 11)

New studies reported in the literature on economics education support the rationale stated in the proposal. In fact, these studies show an increased awareness by teachers and administrators of the importance of twelfth grade economics and of the problems involved in providing an effective course.

In the spring of 1965 the National Association of Secondary School Principals completed a survey on the teaching of economics in U.S. high schools. All public and private high schools enrolling 300 or more students were polled and 50.9 per cent of the 12,331 schools responded.[1] The survey showed an increase in the percentage

of high school students enrolled in a separate course in economics from 4.7 per cent reported in an earlier study to 6.1 per cent.[2] Of schools responding, 69.8 per cent reported offering a separate course in economics, 70.4 per cent of these courses are electives. Not only has there been an increase in economics course offerings, but many schools indicated plans to introduce courses in the near future.

> "...Hundreds of the returns remarked on "plans" and "programs" currently being or about to be initiated. Furthermore, the number of those stating the belief that economics could not or should not be taught below the college level could be counted on the fingers of two hands.
>
> "The findings indicate that the trend is toward a deliberate design which will include some economic materials and concepts appropriately throughout the curriculum from kindergarten through the senior high school. As such a program becomes operative in more and more school systems, the quality and depth of economic reasoning and understanding to be achieved by an economics course in the 12th grade will mean that an increasing number of our citizens will make economic choices and decisions with more competence and wisdom."[3]

Teacher training seemed to be a major constraint on effective economics education. Although an encouragingly high percentage of teachers teaching separate courses in economics had a minor or major in economics, still, roughly 50 per cent of these teachers have had only two college economics courses, or less. Roughly 80 per cent of teachers of other courses which include some economics have completed two college economics courses or less.[4]

> "The most frequently mentioned problem faced by the high schools in carrying out their hopes and plans for economic education is that of finding teachers who like the subject and can make it interesting. "Our main need is a qualified teacher" is the 'theme song' of the many who commented on this problem."[5]

3. Objectives

The final product of the current research and development will be the ECON 12 teaching system. It will have three parts or subsystems:

1. The ECON 12 course designed around specific behavioral and experiential objectives and including both teacher and student materials. Teacher materials include a lesson plan consisting of carefully worked out model lessons for the complete course.

2. Course evaluation instruments, for teacher and student, to determine the extent to which the course objectives have been achieved.

3. The teacher training program which includes 1) a training course in the rationale and proper use of the ECON 12 course, and 2) a teacher supervision procedure to aid teachers teaching the ECON 12 course for the first time.

One of the primary objectives of the project has been to design an adaptible course, that is, a course that will satisfy the demands for teaching economics in most high schools and which a school district can introduce with minimum administrative dislocation and personnel stress. The adaptibility lies in three things:

1. The model lessons are designed to give the teacher freedom to adapt the course to his own needs.

2. The units, and lessons within the units, are flexible. Adaptations for 6-12 week units for Government and Problems course can be made by eliminating a unit(s) or lessons within units.

3. Although designed for twelfth grade level, it can be tested in and adapted for grades 9-11, and for economics courses in teacher and adult education.

In sum, the ECON 12 system is a major advance in solving the problems of teaching economics to teenagers and adults with no previous knowledge of economics and with no particular initial aptitude or interest in the subject.

4. Cooperating Agencies

The project is being carried out in conjunction with the three-year Developmental Economics Education Program (DEEP) grant from the Joint Council on Economic Education to the Contra Costa County Department of Education. The purpose of the County DEEP project which began in September, 1964 is to develop a program in Economics Education, K-12. The twelfth grade course being developed under H-153 is one part of this county program. Because of this coordination of effort, the ECON 12 teaching system is being tested in fifteen of the county's twenty-one high schools. Most of these high schools (as well as some others) expect to introduce the course either wholly or in part as a permanent part of their

social studies curriculum.

The Contra Costa County Project is part of the nation-wide DEEP program sponsored by The Joint Council on Economic Education. The Joint Council's objectives for the three-year program (September, 1964-67) are to initiate on-going programs in economics education in some thirty school districts throughout the country, to encourage development of materials and evolving solutions to teacher training problems through these projects, and to disseminate the worthwhile achievements of the DEEP projects.

The Contra Costa County Department of Education coordinates curriculum research and teacher training of all interested school districts in the county, and the Joint Council on Economics Education aids in publicizing and disseminating economics education programs throughout the country. Needless to say, the ECON 12 project benefits greatly from its association with the County Department of Education and the Joint Council on Economics Education.

B. ECON 12 - A TEACHING SYSTEM

We have attempted to apply engineering principles to designing and disseminating ECON 12. This means two things. First, the course and its dissemination is considered a system. Second, the system is designed and developed by systematic procedures.

1. A Course as a System

A system is an entity which performs a set of specified observable functions. It is made up of interrelated components, with specified, observable functions. Often these component parts can be grouped into subsystems. The proper functioning of a system requires the proper functioning of all its parts or subsystems. In order to insure proper functioning, a system must be self-correcting. This characteristic is achieved through internal feed-back mechanisms through which errors can be detected, diagnosed and corrected without a breakdown in the system's performance. The ECON 12 system has two main functions: it is a course and teacher training program which enables most students to succeed in achieving the course objectives; it is a practical solution to teaching economics in high schools throughout the U.S. at the present time.

The ECON 12 system has three main parts, or subsystems, as described under Objectives:

1. The ECON 12 course,
2. Evaluation instruments and procedures,
3. A teacher training program.

2. Course Design: Applying System Design Procedures

Systems design procedures require the following steps:

1. Specify the desired level of functioning of the system (for a course this means stating the general educational objectives in terms of observable student behavior).

2. Specify the required performance of the system's components to insure effective operation of the system.

3. Design components which perform their function in the system.

4. Design internal feedback to insure the continual functioning of the system.

5. Test components and the system to determine the extent to which assigned objectives are achieved.

6. Redesign and test until the system operates at the specified or some other satisfactory level of performance.

7. Test the system to state its general performance characteristics and the variations in performance levels under different conditions.

The sequence of development activities for ECON 12 are as follows:

1. Assess the conditions under which learning takes place. Determine the interests, abilities and needs of students and teachers, physical and social school environment.

2. State educational objectives of the course which are consistent with these conditions of learning.

3. List subject content, skills, and attitudes students are to learn.

4. Organize these into a tentative course outline consisting of units and lessons within units.

5. Define the purpose of any given unit by stating general objectives of that unit, breaking down the unit into lessons, and stating the general purpose of each lesson.

6. Design lessons by specifying behavioral objectives and learning experiences, and designing the necessary teaching materials.

7. Test the course through its trial in a variety of schools and classes. Evaluate course performance by testing student achievement of behavioral objectives, teacher evaluation of lessons, and evaluation of classroom activities by supervisors.

8. Design a teacher training and supervision program.

9. Revise lessons to conform to information learned in the trial use of the course.

10. Train teachers.

11. Try out revised course and evaluate its effectiveness to specify the characteristics of the completed system. (If time and money permit, additional revisions and trial uses of the systems course can improve its effectiveness).

C. THE ECON 12 COURSE: CONTENT AND CHARACTERISTICS

1. General Course Objectives

After a careful study of the literature on economics education and discussions with leaders in economics education projects throughout the country, with teachers and school administrators, and with labor and business leaders, four general objectives for a high school economics course were identified:

Students should learn necessary information about the functioning of the U.S. Economy to enable them to promote and protect their own personal interests. In particular, they must learn to buy wisely, to sell their services astutely, to save and to invest wisely, and to understand and make use of public and personal welfare programs such as social security benefits, insurance programs, and health and recreation facilities and services.

Students should be familiar with the function and services rendered the public by certain important groups of economic institutions, such as businesses, labor unions, banks and finance companies. They should appreciate the benefits to the individual and to society of the profit incentive system which is at the base of our market economy.

Students should learn economic reasoning and institutional facts which will enable them to become responsible citizens who vote on the basis of a logical evaluation of issues, who participate in politics as volunteers or as professionals, and who devote

time to public service.

Students should become familiar with the types of problems studied by economists and the techniques or methodology of the discipline to (a) learn economics for economics' sake; (b) to create interest in the subject so that college-bound students will take economics courses in college; (c) to learn the importance of economic analysis and research in solving social and political problems.

Although course content is changing,[6] an analysis of high school economics textbooks reveals that the traditional approach to teaching economics has emphasized the points made in the first two paragraphs above, has shown some concern for the points in paragraph three, and has pretty much ignored the problems stated in the fourth paragraph: Textbooks and courses include units on economic institutions, consumer economics, and current economic problems such as the farm problem, labor-management relations, problems of international trade, automation, urban growth. New texts are beginning to study macroeconomic problems of economic growth and stability. However, these problems are rarely designed to be student centered. Instead, they are given a drab textbook treatment--an objective summary of the problem and of the various solutions to the problem. This "overview" coverage does not challenge the student to learn about or try to study the rational solutions to the problem.

2. The Relation of Course Organization to the "Structure of the Discipline"

The recommendations of the 1961 Task Force Report on Economic Education were used to set the limits on the theoretical and empirical content to be covered in the course.

The Task Force Report recommended an almost complete coverage of the subject matter of the discipline as well as training in economic reasoning. Although eventually it may be possible to design an economics curriculum, K-12, which will provide students with this broad comprehension of the discipline, this objective seems unattainable if the primary (perhaps only) introduction to economics is through the twelfth grade course. For our purposes, it was necessary to reduce the recommended content to some practical minimum achievable by most classes and, at the same time, to design a course which would achieve the main objectives sought by the Task Force members--to develop students' economic powers of reasoning and to enable students to learn the basic principles of operation of the U.S. economic system.

After consultation with economist consultants and a review of the classic studies on the nature of economics, we produced a state-

ment delimiting the boundaries of subject matter and summarizing the methodology basic to the science of economics. Concepts basic to the structure of the discipline were isolated and their interrelations stated. A definition of economics was constructed which would serve as a basis for determining subject matter and forms of inquiry to be included in the course. This description of the ECON 12 version of the structure and significance of economics is briefly stated in the introduction to Unit I (Appendix B) and in the student programmed instruction booklet which is part of Unit I, Lesson 7 (Appendix B). The content outlines for the seven lessons in Unit I give the complete statement.

The conceptual framework of economics developed for use in designing ECON 12 is an integration of the work of Lionel Robbins and Kenneth Boulding. It is an attempt to make more operational Professor Robbins' classic definition of economics: "the science which studies human behavior as a relationship between ends and scarce means which have alternative uses."[7] This is an elegant definition and it provides students with an important frame of reference with which to enter into a study of economics. However, in an introductory course it is important to describe some more or less definable area of study. Therefore, it is important to admit that economists do tend to limit their area of inquiry to the study of social organization to carry out five basic economic activities: production, exchange, consumption, saving, and investment.

The parts of the course related to the operation of the U.S. market system are heavily influenced by the work of Oskar Lange on the function of the price system, Robert Dofrman on price theory, and Richard Caves on industrial organization.[8] The macroeconomics section of the course attempts to make comprehensible and vital the influence of the Keynesian Revolution on the development of U.S. monetary and fiscal policy by introducing students to the recent work of the Councils of Economic Advisors to the President, of Robert Musgrave and of the staff of the Congressional Joint Economic Committee.[9]

The conceptual framework of the ECON 12 course is one of many orderings of basic economic concepts and ideas. Although there may be differences in organization, there seems to be wide agreement among economists on what constitutes the basic concepts and on the nature of economics as a social science discipline. This consensus among economists is reflected in the current economics curriculum projects throughout the country. It is evident from a comparison of Unit I of ECON 12 with the Senesh primary grades' social studies course, and with the economics units being developed in the Ohio Stage economics education project.[10] These courses are all complimentary to each other, even though they are independent projects for different grade levels, and each emphasizes different aspects of economics.

3. Course Content and Organization

From the analysis presented in the preceding two sections, it seems apparent that a course is needed which actually does prepare most students to become astute market participants, responsible and rational voting citizens, and advocates of scientific solutions to social problems. The course should also be challenging enough to college-bound students to encourage them to enroll in college economics courses.

We accepted these four objectives as the main reasons for teaching economics; we accepted as valid the criticism of the traditional institutional approach to teaching economics, and we made the following decisions about the characteristics of ECON 12:

1. The course will be primarily a study of the U.S. economy.

2. It will be organized around the theoretical framework of the discipline which can be used to study all problems in economics. In particular, the course will emphasize the underlying principles which affect market decisions, and the principles which determine growth and stability of an economy.

3. Students will study these basic principles by applying them to concrete examples and problems through the use of increasingly elaborate case studies in which students are supplied the relevant data and learn to use the data to draw inferences about the aspect of the economy being studies.

4. Throughout the study of the U.S. economy, the focus will be on the analysis of the relation between market forces and government action in economic decision making and in the performance of the economy.

5. There will be no systematic study of economic institutions, that is, no special units on labor unions, banking, corporations, or farming. Knowledge about economic institutions will come from examples and case studies chosen from a limited number of areas. These subject areas will be used throughout the course and will be chosen according to two criteria: to illustrate the operation of major economic institutions and major economics in the world; and to inform students about economics subjects in which they have expressed an interest.

The present course outline is detailed in Appendix A. Trial use of Units I and II this spring indicates that, for most classes, this general organization is adequate. As presently organized, the course is divided into three main units and three optional units.

The main units will require fifteen to eighteen weeks to complete, and the optional units will be designed to require approximately two weeks each. The last three units are optional in the sense that they are not necessary to the main objectives of the course. They are included to increase course coverage of subjects and to provide fast classes with additional units of study.

Unit I is a four-week unit designed to commit students to studying economics by alerting them to the importance of economic analysis, and to arouse their interest in the subject and methods. Students are introduced to the basic conceptual framework employed in the rest of the course: the scarcity problem, the partial solution of scarcity through specialized production to increase resource productivity; the reliance of modern societies on money and exchange; the organization of economic activity as an economic system; the need to study the micro and macro aspects of this economic organization; the existence of conflicts of economic interest in society; the solution of conflicts through tradition, command and market forces; and the use of rational procedures to form economic policies.

These concepts are introduced in simple form. Students relate them to each other and apply them to simple concrete examples. The unit gives a total picture of the scope of economics and furnishes students with a basic vocabulary, a group of skills and a point of view about economics. In later units, these concepts and skills are developed further through their application to increasingly more complicated cases and economic problems.

In Unit II, which lasts six to eight weeks, students study the interaction of market and government forces to determine the allocation of scarce resources among alternative uses. After a brief study of the theory of demand and supply and the operation of purely competitive and pure monopoly markets, students study and evaluate the efficiency of specific product and factor markets in the U.S. From this first-hand study of the way competition works in given markets, students are given a chance to generalize about the nature and effectiveness of the U.S. market economy, and about the effectiveness of government control over markets.

Unit III lasts four to six weeks. In this unit students study the interaction of market and government forces in determing changes in the aggregate level of income and employment, and the rate of growth of the U.S. economy. The unit provides the theoretical and institutional framework necessary to study the success of the U.S. economy in achieving three fundamental social goals: full employment, a steadily increasing standard of living, and increasing individual economic security and justice. Students will evaluate controversial national economic policy issues in class. These experiences are designed to make students begin to develop a consistent set of personal values, and to start to form opinions about

public economic policies which are consistent with these values.

The three optional units give students an opportunity to apply their newly learned skills and knowledge to new problems; they, therefore, can review the basic parts of the course.

Unit IV is a brief introduction to problems of international trade: the free trade arguments, and the structure of international monetary transactions. Unit V is a study of the Russian economy: resource allocation decisions in Russia, problems of Soviet planners, the success of the economy in achieving announced goals, and problems in comparing the U.S. and Soviet economics. Unit VI is a study of India, a developing economy: the problems of identifying and describing an underdeveloped economy, the specific problems confronting India, India's planning procedures to encourage economic growth, and the difficulties of achieving growth in India.

D. COURSE DESIGN CHARACTERISTICS

1. Introduction

Teacher and student commitment to the successful completion of the ECON 12 course are essential. Within the capabilities of ECON 12 staff, the course will eventually be designed to necessitate student participation. This should maximize their success in completing learning experiences and in achieving the course objectives. It is, therefore, necessary to isolate the important characteristics of students and teachers which affect successful student learning and to design the course and lesson according to the specific characteristics which bring about the required student responses.

The process of isolating the relevant student and teacher traits which affect successful learning is a major problem of educational research. We cannot hope for complete information, but we are basing course design characteristics on data we collect about students and teachers.

2. Teacher Economics Training, Experience, Interest and Ability

Information about teacher interest and abilities were based on direct work with the 24 teachers who volunteered to try out ECON 12 in Contra Costa County, from a country-wide survey of training and interest in economics of all Contra Costa County high school social studies teachers, and on the results of two recent national surveys on the teaching of economics in high schools.[11]

A survey of all 216 high school social studies teachers in Contra Costa County in the fall of 1964 revealed the following information about teacher economics training, experience and interest in teaching economics:

Per cent of teachers with following economics training:

M.A.	0.4
B.A., B.S.	5
Minor	9
6 units to less than a Minor	52
less than 6 units	34
Total	100.4
B.A., B.S., in Bus. Adm.	1.8

Per cent of teachers who are teaching or have taught economics in past five years 7
Per cent who approve of teaching economics . . . 94

Our work with teachers suggest both positive and negative factors which must be taken into consideration in designing the course. On the plus side, we found that the teachers involved in the ECON 12 experiment:

1. are adequately informed about current events and practical (personal) economics;

2. are adequately trained in economics (the combination of workshop training and structured course design provides sufficient economics background);

3. want student respect and are concerned about good teaching; they, therefore, are interested in trying new, sensible teaching ideas; and are equally quick in rejecting strategies which they cannot make work;

4. are willing to accept help and direction from subject matter and curriculum advisors, and, in fact, are often too willing to accept leadership from others;

5. are relatively patient about experimenting with the ECON 12 course.

We have also found teacher limitations which we must take into account:

1. The general lack of training in economics means that teachers make mistakes when they venture out of the ECON 12 content; they are usually unable to design successful lessons on difficult concepts, or techniques of argumentation and analysis.

Furthermore, lack of formal training makes it difficult for teachers to organize an economic course alone because they are unaware of the importance and subtleties of economic concepts, of the complexity of economic problems, and of the need for the methods of rigorous economic analysis. This makes it impossible for a teacher to determine the overall choice and sequencing of content.

2. Teachers have a limited amount of time available for course preparation, and many do not carry on any serious personal reading program other than the reading of newspapers and magazines.

3. Many teachers do not use student centered teaching strategies, do not understand what they involve, and are limited in their ability to change their customary teaching methods.

4. For many teachers, there is a deep and cynical dissatisfaction with education and about the possibility of remedy.

5. Teachers may detach themselves from responsibility for effective education of students. It then becomes difficult for them to experiment with or learn new teaching methods which require self-evaluation and objective diagnosis of student behavior.

3. Student Interest and Ability

Data on students have been obtained from the trial use by the principal investigators of an early version of ECON 12 in two classes last spring (this exploratory teaching was reported in the ECON 12 March 1965 Progress Report), observations of twelfth grade economics classes over the last two years, teaching and curriculum consultants' knowledge of students, and a review of the literature on the sociology of the high school and classroom learning theories.[12]

This semester we are testing student achievement in the trial use of ECON 12. The analysis of these tests and of student actions in class will provide much needed additional data on which to base assumptions about student ability and interests.

From the trial classes this spring we have observed seven conditions related to student needs, all of which must be thoroughly explored and taken into account in the course design:

1. Student-teacher rapport is of basic importance for the successful use of many student-centered teaching strategies;

2. The effect of variations in student ability and interest on the choice of appropriate subjects for study, for materials used and teaching strategies employed;

3. Students are limited in willingness to accept new educational methods; are dependent on certain standard learning procedures, such as reliance on a text and on learning by being told.

4. It is questionable how relevant economics is to the immediate needs and interests of graduating high school students.

5. The extent to which their disaffection from or impatience with school limits designing a successful course;

6. Students are uninformed about basic economic concepts, and their skills in rational thinking is limited.

7. Students are ambivalent about growing up; they want respect, but they prefer play to work.

4. Course Design Characteristics and Operational Procedures*

This section describes the major characteristics of course design we are employing to build in the necessary and sufficient conditions for student and teacher success with the course.

Full teacher commitment and participation depends on how well students respond to the course, the extent to which the teacher activities fit the teacher's own style and personality and how completely the materials and organization ease preparation and administration. In short, the course must enable the teacher to do a good job in the time he has available.

For students, motivation and willingness to work depends on student interest in what they are learning. For most students this depends on their own evaluation of the relevance of the study to their current lives and to their future plans. A second factor is student ability to succeed in learning--their actual success, or their success in earning good grades. Finally, student participation depends on their respect for the teacher and the course. This respect depends on the respect and spirit of fair play shown students in the course and by the teacher.

a. Course organization and objectives must be completely and clearly stated.

1. The units and lessons within units must be identified and placed in a suggested sequence;

* The material in the appendices provides examples of most of the general statements in this section.

2. The rationale for each lesson must be thoroughly understood by teachers.

The careful articulation of course structure and purpose relieves the inexperienced or inadequately trained teachers of the task which he is least able to do effectively himself. Furthermore, if the rationale is sensible and clearly stated, the teacher will more likely be able to convey the importance of the lesson to students.

The precise statement of organization is essential, even for teachers who wish to alter substantially the course objectives in their adaptation of it to their own classes. Before teachers can alter the organization, they must understand the rationale behind the lesson or objectives they contemplate changing.

b. Lessons must be flexible enough to allow teacher to develop their own and student interests and abilities. This flexibility can be achieved by allowing flexibility in lesson planning with respect to the choice of learning experiences, materials and illustrative content.

1. The lesson plan spells out lesson objectives and content.

2. The materials provide alternate ways of achieving the experience and behavioral objectives.

3. Teachers can choose between different subjects to illustrate the principles being learned in a given lesson, between varying degrees of individualized instruction and total class activity, and between varying degrees of teacher or student control of group activities.

c. The total teaching system must be designed to assure that teachers will adapt the course successfully to their own personality and to the needs of their students. A teacher training course is a necessary component of the system. The fact that lessons are only partially planned in advance means that the success of the course depends on the ability of teachers to complete the lesson designs and to develop their own teaching strategies. Since the course is designed around recent theories of curriculum, to do this planning teachers must be able to use new teaching techniques.

The requirement of teacher commitment to complete the lesson design and to carry out the teacher's function in the system, places a great burden for course success on the teacher. It means that an essential part of the teaching system is a required teacher training program. The necessary teacher training must be accomplished through a special in-service course designed to commit teachers to successful teaching of the course, to familiarize them with the

course structure and content and to provide the time and experience in designing lessons and developing effective teaching strategies.

d. Course and lesson organization should be designed to facilitate learning by careful sequencing of activities. There are at least four kinds of sequencing in designing a teaching system:

(1) Sequence lessons and lesson objectives to set up the conditions of learning for subsequent lessons, so that students will have acquired the prerequisite skills and information required for any given lesson.

(2) Sequence lessons and learning experiences to provide students with continual and adequate reinforcement of, and practice in, using new skills and information.

(3) Design individual learning experiences and lesson materials so that the increments of new learning are not too great for students. Make sure that the required learning is possible for students at a given point in the course.

(4) In designing this spiral course design, sequence content, objectives, and class activities to provide a spiral learning of concepts, skills, factual information and attitudes.

(5) The sequencing and tailoring of learning described here may lead to some student dissatisfaction with what they are learning and how they are being asked to learn, particularly in the early parts of the course. Try to alleviate student complaints by continually informing students of the purpose and object of each unit, lesson and learning experience.

e. Course activities, subject matter and materials should interest students. There are two substantive parts of the course:

(1) The conceptual and methodological framework of economics; and

(2) the application of this framework to specific real world conditions and problems.

The necessity for substantial structuring of course objectives derived from the need to teach students the framework of economic analysis so that they can apply it.

(1) The choice of applications of economic reasoning is not crucial, and, therefore, should be made to conform to student interests. Illustrations, case studies, and problems and class activities should be chosen to interest students.

(2) Materials should be in an idiom and style which is is in harmony with the perceptions and modes of communication of the teenager.

(3) These choices must be made according to actual student preferences, not according to adult hunches about student preferences. That is, they must be based on information collected from students, under conditions in which they are relatively free of adult domination. We are collecting this data this spring by procedures described in Section H below.

f. Variability of student interest and needs must be recognized in designing lessons and materials. Not only is it necessary to take average student interest into consideration, it is equally important to recognize the great variations of students in the twelfth grade. The importance of individual differences insists the course be designed to provide some individualized instruction, and should be, to some extent, student centered.

(1) When possible, use student-centered learning. Allow students to choose what they study and require them to develop their own procedures for completing assignments.

(2) Prepare materials which allow students to choose from a group of case studies and problems, both individually and as a total class.

(3) Use programmed instruction to teach vocabulary, complicated principles, learning which requires students to practice the new skill, or to learn to make rather fine discriminations. Programmed instruction can relieve the teacher from teaching difficult material, can reduce class time taken for such learning, and can allow students to learn difficult subjects at their own pace. Use of programmed instructions can improve the timing or pacing of a lesson by reducing the time spent on troublesome, but really only moderately significant, learning.*

(4) Limit the use of time-consuming inductive learning sequences to student discovery of the most important generalizations in the course. Use programmed instruction to get students to induce for themselves other less important rules or meanings of concepts by providing examples from which students derive the rule or concept.

g. Media and teaching strategies should be chosen and designed to maximize their effectiveness in achieving the course objectives.

(1) Design the course so that it can be completed by non-readers of average intelligence.

(2) Include a text in the learning materials, but limit its use to summarizing what is to be or what has been learned.

* See Appendix F - Program on Comparative Advantage.

(3) Use a wide variety of media and teaching strategies to make the course more interesting and to provide a means of changing pace.

(4) In choosing the specific media or teaching strategy in achieving a given objective, choose the media or strategy which is well suited for the assigned task (e.g., In Unit I, Lesson 5, we use a four minute single concept film to show an animated circular flow diagram. This model shows the time dimension of economic production and consumption.)

(5) Experiment with using two or more media together (e.g., In Unit II Lesson 2 on models, a film and program are used together to help students learn the functions of models in economics).

E. DESCRIPTION OF LESSONS AND COURSE MATERIALS

1. Lesson Structure and Teacher's Lesson Plans

The lesson plan for each lesson provides the teacher with a complete description of the purpose, content, behavioral objectives, learning experience objectives, suggested sequence of learning experiences, and the range of correct answers to student assignments. The rationale of the lesson--its importance to the rest of the course and the reasons for choosing the particular objectives and learning experiences - is summarized in the statement of purpose and in a summary chart.

New evidence about how complete and closely structured lesson plans should be has led to periodic changes in the content of the lesson plans. Also, lesson plan format has been altered continuously from lesson to lesson in order to incorporate more efficient ways of describing the lesson. All of the lesson plans for Unit I are highly structured. Not only are objectives and content completely specified, but we give a complete sequence of class and homework activities, and we describe a suggested day-by-day procedure for carrying out these activities.

Our experience this spring has forced us to recognize the need for more flexible lessons. In Section D-4, above we described how we intend to provide this flexibility. In this section we will summarize the structuring of lessons and the lesson plans of the first test version of lessons in Unit I and II. We will then use this description to illustrate the changes we intend to make in lesson structure. (Two sample lesson plans are included in Appendix D and E)

The Lesson Plan for a lesson is a statement of the lesson structure and is made up of the following parts:

Purpose of the Lesson. The purpose briefly outlines the main behavioral and experience objectives of the lesson--the knowledge, skills, and attitudes which students are to learn or work with. This statement also puts the lesson in perspective: it describes its function in the Unit.

Content Outline. The content outline is a complete statement in outline form of the principles and definitions of economics to be learned or used in the lesson, Is is an ordering of this information based on the internal logic of the subject matter, and is organized to emphasize the primary concepts or generalization of the lesson.

Statement of Long-term behavioral objectives. The course is designed to enable students to achieve a set of behavioral objectives which are tested in the course final examination or in required written exercises. We define behavioral objectives as statements of required student performance of some written task and the conditions under which students perform the task.

The course behavioral objectives are assigned to individual lessons, and one important object of each lesson is to insure that the behavioral objectives assigned to that lesson are in fact achieved by the time students complete the lesson. The course behavioral objectives assigned to a given lesson are called long-term behavioral objectives.

The designation of these objectives as long-term does not imply that they are life-long objectives which will always remain with the students. But these objectives are not general long-term objectives (e.g., making students into rational decision makers and astute buyers and voters) The long term behavioral course objectives describe a specific group of standards of student performance which are consistent with, but by no means identical to these general educational objectives. We hope that through the achievement of behavioral objectives and by completing the course learning experiences, students will use the successful course experinece to develop rational economic decision making behavior.

In Unit I most of the long-term behavioral objectives involve relatively simple cognitive skills such as recognition of rules or definitions and application of rules to given examples. This is because the main purpose of Unit I is to lay the groundwork for the analysis of the later units. In Unit I students learn a vocabulary, and they learn to apply this vocabulary to given situations. The economic reasoning performed by students in Unit I provides them with some initial practice in economic analysis, but in most cases there are no corresponding long term behavioral objectives which students must achieve in those lessons.

Prerequisite Behavioral Objectives. The prerequisite objectives of a lesson are distinct from the long-term objectives because they are not course behavioral objectives. Prerequisite objectives are actions of the students which are necessary to insure the achievement of the long-term objectives. The prerequisite objectives of a lesson support the long-term objectives of the lesson, or of future lessons.

An example of the distinction between prerequisite and long term objectives will show the difference and the need for the distinction. In lesson I students learn to define the condition of scarcity as an inequality. Scarcity exists if the amount of a thing people want is greater than the amount readily available to satisfy wants. Learning this definition according to some criteria of performance is a long-term objective of the lesson. A prerequisite objective designed to assist in the learning of the definition as an inequality is to require students to use inequality signs correctly in a series of algebraic expressions. Students will not be tested on the use of inequality signs in the final examination, but they will be tested on the definition of scarcity as an inequality.

Learning Experience Objectives. Learning experience objectives are not behavioral objectives in the strict sense. A learning experience objective describes the desired classroom or homework behavior (experience) of the individual student or a group of students in completing a given learning experience; it does not state a criteria for testing successful performance which will be applied and recorded for each student.

Each lesson is designed around both behavioral objectives and learning experience objectives. The learning experince objectives for a given lesson may aid stuents in achieving the long-term behavioral objectives of the lesson, or they are directly related to the general purpose of the lesson.

These distinctions between types of objectives are still being formulated, and, therefore, there are inconsistencies in the use of these terms in the lesson plans. In the first three lessons of Unit I, no clear distinction was made between learning experience objectives and [redacted] objectives, and Lessons 4, 5 and 6, learning experince objectives are not stated separately. However, they are described in the lesson sequence and summary chart.

An example from lesson 4 should illustrate the difference between a learning experience objective and a behavioral objective. In this lesson, students derive a procedure for studying the Tsimshian economy through class discussion. After students agree upon a procedure, they apply it to the Tsimshian Indians. They read an essay and use the procedure arrived at in class to complete a table summarizing the main characteristics of the Tsimshian economy. The

teacher reviews the assignment in class to make sure all students have completed an acceptable summary analysis. There are two learning experiences here: (1) group derivation of a procdure; (2) application of the procedure by each student individually. There is no criterion for testing each student's performance in (1) because the activity is a group activity; in (2) because even though the teacher can grade student work, we don't include a prerequisite or long-term objective in the lesson requiring it. This is learning experience objective of this lesson which supports behavioral objectives of later lessons.

Summary Chart of Content and Objectives. This chart summarizes the relation between the major concepts or generalizations of the lesson and the long-term, prerequisite and learning experience objectives. It also gives the rationale for the choice of prerequisite and experience objectives.

Lesson Sequence. The lesson is made up of a sequence of learning expereinces employing different teaching strategies and media. The lesson sequence is a day-by-day description of a suggested procedure for teaching the lesson, ways of employing the strategies and the media, and a detailed statement of the necessary information for completing the lesson (including sample answers to all questions or problems for students).

The Lesson Sequence Chart. This chart is a day-by-day summary of the sequence of learning experiences. For each concept of generalization of the lesson, the chart briefly describes what the teacher does, what students do, the worksheet frames which apply to the concept, the audio-visuals, the homework assignment, and the method of evaluating student participation or performance.

The lesson plan organization described here has been too restrictive for teachers; they report that they like the careful structuring of content objectives; they like the summary chart describing lesson rationale. But they do not want to be tied to a fixed sequence of learning experiences and a set class procedure to follow. We are, therefore, experimenting with new ways of designing the lesson which substitutes a careful explanation of learning experience objectives for the lesson sequence. If the new, less structured, lesson plans work out well, then the teachers' manual will probably contain a special introductory section describing teaching strategies which can be employed and the conditions under which they are useful.

2. Audio-Visual Materials.

Audio-visual materials developed for the course consist of the following:

1. Overhead transparencies -- for presenting data and static models;

2. Film strips -- for introducing lessons, summarizing material, and stimulating student interest;

3. Films -- for presenting dynamic models, for summarizing material, and stimulating student interest.

The project staff has produced three films:

1. "Production" (8 minutes, sound-color) presents an historical survey of production specialization from primitive times to the present. This is the first part of an inductive learning sequence in which the students first describe the production innovations shown in the film, next they describe the reasons why production was increased in each instance, and finally, they induce the three main categories of specialization, i.e., division of labor, resource specialization and the use of capital.

2. "The Circular Flow Model" (8 minutes, double loop, color) presents an animated circular flow model of an economy which shows the operation of the economy as a constant process of production and consumption. This too introduced an inductive learning experience and the points to be induced are set forth in Lesson 5 (Appendix D).

3. "Model Man" (18 minutes, sound-color) is a uniquely successful attempt to communicate an abstract concept (the nature and use of scientific models) through direct visual images which are reinforced by a sound track. This film is followed by a half-hour program which reinforces the learning from the film and prepares the students for a criteria test on the use of models.

3. Student Materials

Student worksheets are used to organize student activities for most lessons in the first test version (see Lesson 5, Appendix D). The worksheet is organized as a series of "frames" -- one frame for each learning experience. The frames vary in function. They may do one or more of the following:

1. present information;

2. provide an orderly form for taking notes during classroom discussion or teacher lecture;

3. provide questions or problems for a classroom learning experience;

4. instruct student on specifications and procedures for out of class projects and homework assignments;

5. include sequences of programmed instruction (micro-programs),

6. present questions and problems which test behavioral objectives.

Because there is a need to provide for greater flexibility in the kind of and sequence of learning experiences, less emphasis will be placed on the mandatory use of student worksheets than heretofore.

Programmed Instruction Booklets are one-half to one hour (depending on the student) linear programs which present difficult or tedious material in the most efficient possible way. They can be used in the classroom or for homework assignments. These programs take the place of the text and of class tutoring or lecturing. They have been very popular with both students and teachers, consequently, increasing use will be made of them.

A Readings Book will contain short essays, short stories, and statistical data which are used in the learning activities. Readings on current events from newspapers and periodicals available in the school library will also be used.

The Text will be short. It will be based on the content presented in the content outlines of each lesson. The text is a summary of the major points of the lesson and may be used as an introduction to, or summary of, the lesson, or both. At times, the text may be used as the primary learning device, but usually other materials will perform this function.

Tests and Examinations are all criteria test items of long-term or prerequisite behavioral objectives:

1. End-of-lesson tests are self-graded tests which enable the student to determine for himself whether or not he has successfully completed the learning experience of the lesson. In the developmental stages of the project these tests are used to test the effectiveness of the lesson.

2. End-of-unit tests test achievement of all the long-term objectives achieved by the end of the unit; and any interim objectives which represent conditions for learning necessary for Units II and III.

3. The final examination is a comprehensive test designed to determine the success of students in achieving all of the long-term objectives of the course. It will include both multiple choice and essay questions.

F. DESIGN AND DEVELOPMENT PROCEDURES

1. Unit Design

The first step in designing a unit of the course and its component lessons is to state as succinctly as possible (500 words or less) the general purpose of the unit --the knowledge, skill and attitude objectives of the unit. In stating these objectives, some general specifications should be made about the means of achieving these objectives (ie.g., specifications in terms of categories of Bloom's Taxonomy of Educational Objectives).

These unit objectives are then divided into specific lessons, and first-approximation short statements of the purpose of each lesson are made. After clear and concise statements of general objectives of the unit and of each lesson have been constructed, work begins on the lesson, starting with the first lesson of the unit and working on each lesson in order of its appearance in the unit. As lessons are completed, the objectives of the total unit and of given lessons change, and the statements of purpose are continually altered to conform to these changes. The number and order of lessons may even change.

2. Lesson Design Procedures

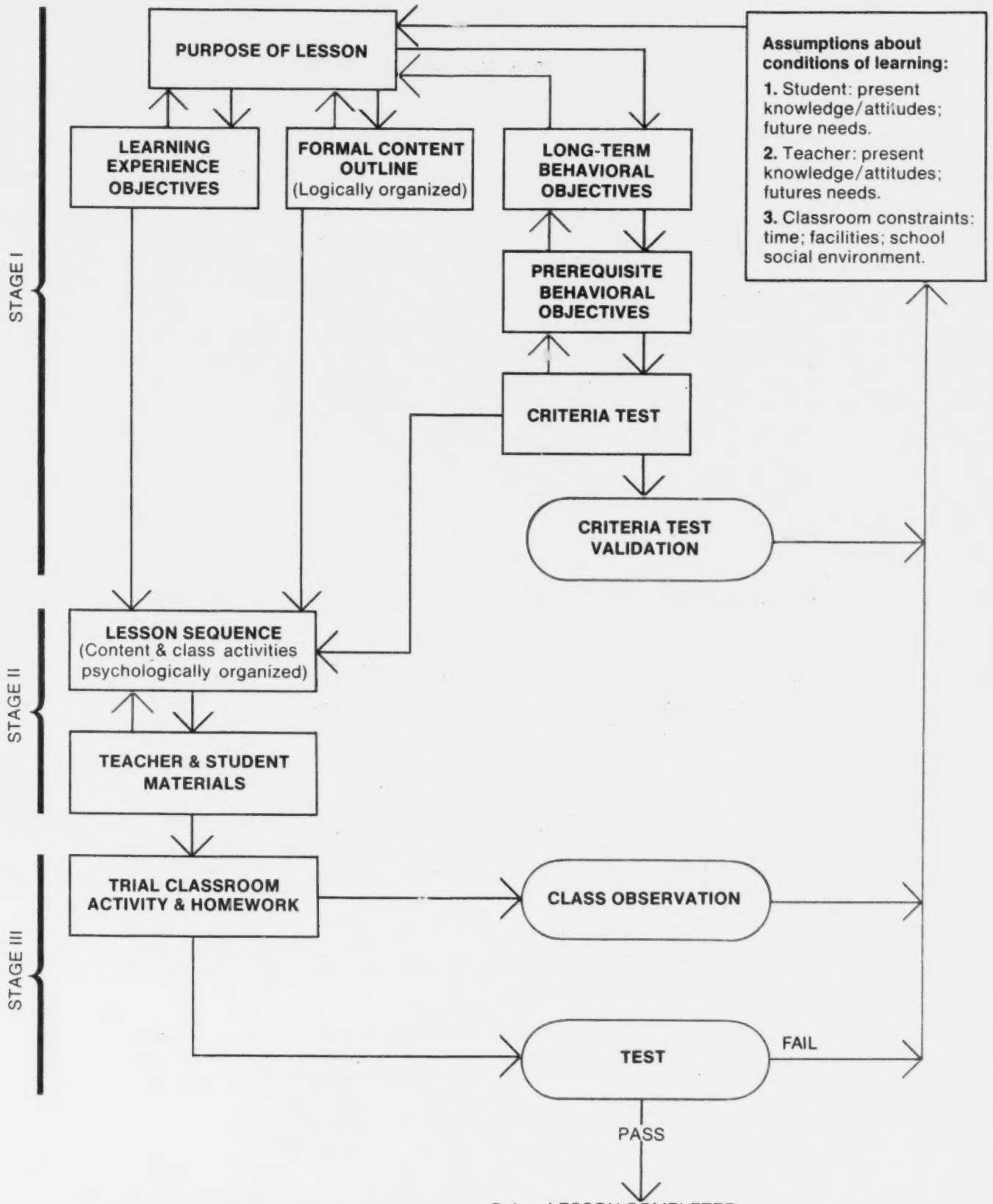
The chart on the following page gives a graphic presentation of the lesson design procedure. Black lines and arrows show the sequence of the developmental activites; red lines indicate feedback; rectangles outline production stages; ovals outline evaluation steps. The chart shows three separate stages of lesson development.

Stage I -- generates the Lesson Plan. It begins with the statement of purpose followed by a specification of (1) learning experience objectives (2) subject content outline and (3) behavioral objectives (long-term and prerequisite) and the criteria test of these behavioral objectives together with its validation.

Stage II -- generates the student materials and the audio-visual materials. The desisions from stage one are used to specify the lesson sequence and the design of the materials.

Stage III -- is the testing and evaluation stage which determines whether further developmental work is required or whether the lesson is ready for general classroom use.

LESSON DESIGN PROCEDURE



In the following description of course design, the first seven steps describe Stage I, the next two steps describe Stage II, the last step summarizes the testing and evaluation phase, Stage III.

Stage I

1. Lesson design begins with the statement of the general purpose of the lesson and assumptions about conditions of learning. The procedures used to arrive at the lesson purpose and assumptions about the conditions of learning are described in earlier sections of this report. The alteration of these assumptions and of the purpose of the lesson through classroom observation and testing is indicated by the red feedback lines which lead back to the rectangle labeled "assumptions about conditions of learning."

2. Using the purpose of the lesson as a guide, and within the constraints of the assumptions about learning conditins the content of the lesson is organized in a tightly logical sequence and an outline of this content is prepared.

3. Learning experience objectives are stated which relate to both the lesson content and behavioral objectives.

4. Long-term behavioral objectives are specified which provide standards for testing the achievement of the purpose of the lesson. The chart shows feedback loops between the purpose of the objectives of the long-term objectives to show the high degree of interrelation between content and objectives.

5. Prerequisite behavioral objectives are specified from learning experience and long-term behavioral objectives. They are necessary to enable students to achieve the lesson long-term objectives, or they support the lesson learning experience objectives--that is, they support the behavioral objectives of future lessons in the course.

6. The criteria test is composed of questions (to be answered in writing by students) which test achievement of all long-term and prerequisite behavioral objectives. The feedback loops between the criteria test and objectives' boxes are included because inability to construct an adequate criteria test item requires the elimination of or change in the behavioral objectives corresponding to that test item.

7. The test should be given to a group of students before they start the lesson to find out what students already know. This step permits us to check assumptions about students' current knowledge and to eliminate unnecessary parts of the lesson. On the basis of the new information, learning experiences, content, long-term and prerequisite objectives are altered.

(Because of the time-lag between lesson preparation and trial has been so short, this step has not been carried out prior to the first trial use of the lessons. We hope to do this sort of testing before lessons are revised)

At the completion of step seven, the formal part of lesson design is completed. Once the content, learning experience, long-term, prerequisite objectives are specified and tested, the production phase of designing a sequence of learning experiences can begin. There is no red feedback arrow from the lesson sequence. This means that problems of lesson sequence design should not alter the purpose --content, or objectives of hhe lesson.

Stage II

1. Designing the lesson sequence involves constructing a sequence of learning experiences which will allow students to achieve the objectives of the lesson. Factors affecting lesson sequence include student interest and knowledge, readiness to participate or perform certain acts, and timing for homework or library assignments.

2. Designing the teacher and student materials gives concrete form to the lesson. The feedback loop to the lesson sequence is necessary because of the limits of the ingenuity of the project staff. If satisfactory materials cannot be developed for a learning experience--or should serendipity reveal a better approach--then the sequence is altered.

Stage III

When all materials are preared, the lesson is tried out in several classes. Evaluation is deseribed in the next section. includes class observation by the teacher and a staff supervisor, and the administration of the criteria test to students. If the desired percentage of students reach the criteria level on the test, the lesson design is satisfactory. If the desired results are not obtained, the data from evaluation are used to alter the original assumptions about the conditions of learning, and the whole process begins again.

The overall approach described here is an extension of the procedures of programmed instruction to the design of a teacher controlled course. The deliberate attempt to apply programmed instruction design techniques has led to:

1. Specification of the objectives of the course in terms of the terminal behaviors expected of the successful student. Since such objectives specify the observable actions which the student must perform to exhibit each aspect of proficiency, they are measurable through testing. Test data provide the essential "feedback" through which a designer readjusts the components of his system when results fall short of what is desired;

2. Division of instruction into relatively small increments or learning experiences, each of which should be completed successfully as a prerequisite to continuing to the next step;

3. A requirement of active participation by the student and frequent feedback to both student and instructor as to the progress being made;

4. The emphasis on diagnosing student progress through objective observation and analysis of student behavior in class;

5. Perhaps most important of all, a continuing emphasis on student achievement as the goal of instruction.

3. Staff Requirements

The preoccupation with student needs has led to the use of a relatively wide range of resource persons. The design of a teaching system requires the specialized skills of a team who work together to make major design decisions and work separately to carry out these decisions. This point is best illustrated by listing the types of staff jobs and their functions:

1. The programmed instruction expert supervises the careful structuring of the content, its division into teachable increments and the statement of behavioral objectives. He also writes the short programmed instruction booklets used in the course and may write or help with the worksheet frames.

2. Audio-visual or "media" consultants help determine the media and teaching strategies to be employed in each lesson, suggest practical solutions to technical media problems and provide information on the appropriateness of the assumptions about conditions of learning.

3. Graphic designers recommend media which enhances communication, and design materials to perform a series of functions that aid in creating learning readiness by interesting students in the subject to be studied, and communicate difficult abstract concepts visually rather than verbally.

4. Curriculum theorists aid in shaping course design, recommend effective teaching strategies, design specific teaching strategies, develop procedures for studying new teaching strategies, and recommend teacher training procedures.

5. Test constructors and measurements experts set up an effective and efficient means of testing the course during its development, and design the testing system for the completed teaching system.

6. Trained teacher supervisors are required to devise a procedure for evaluating teacher competence and supervising the teachers involved in the trial use of the course while it is being developed. They help design the teacher training system for the completed teaching system.

7. Experienced teachers are part of the team from the beginning of the project. They provide information about students and teachers, and they, therefore, advise on course and lesson objectives and lesson design. They teach the course during the trial testing period, and they help revise lessons.

8. Subject matter specialists define the conceptual structure of the course, supply illustrations and problems for lesson learning experiences, supply the lesson content outline, help construct behavioral objectives, criteria test items and learning experience objectives.

9. Professional writers write essays, text and scripts for films.

10. The course designer organizes the project and has a thorough grasp of systems design procedure.

4. Trial Use and Evaluation of the System

In the current trial use of the course we are making a systematic study of teacher and student reactions to the course and to economics as a subject of study. We are also measuring student achievement of course objectives.

This spring the course is being tried in fifteen high schools in Contra Costa County. There are 44 classes, nineteen teachers and approximately 2200 students involved in the test. Teaching conditions vary from class to class. The schools are located in different kinds of communities. Some classes are elective, some are required courses; some classes are devoting a full eighteen weeks to economics and some less. There is variation in class size, and some classes are homogeneously grouped, some are not. Table 1 summarizes these variations in teaching conditions.

TABLE I
TRIAL CLASSES IN ECON 12
SPRING, 1965, BY SCHOOL DISTRICTS AND SCHOOLS

Name of School District and of High School	School Location	Characteristics of ECON 12 Classes														
		Number of Sections Type & Size Class					Family Income Concentration					Racial Pattern		Ecology		
		No. Sections	Heterogeneous	Homogeneous	Small	Large Lecture	Upper Middle	Middle	Lower Middle	Low		White	Mixed	Urban	Suburban	Rural
Acalanes Union High School District																
Acalanes	Lafayette	3	x			x	x					x			x	
Miramonte	Orinda	3	x			x	x					x			x	
Antioch Unified School District																
Antioch	Antioch	5	x		x			x	x	x		x		x		
Liberty Union High School District																
Liberty Union	Brentwood	1		x	x				x	x			x			x
Mt. Diablo Unified School District																
Clayton Valley	Concord	4	x		x			x				x			x	
College Park	Pleasant Hill	5		x	x			x				x			x	
Pacifica	West Pittsburg	2		x	x			x	x	x			x		x	
Pleasant Hill	Pleasant Hill	2		x	x			x	x			x			x	
Ygnacio Valley	Concord	3*		x	x		x	x				x			x	
Pittsburg Unified School District																
Pittsburg	Pittsburg	8		x	x					x			x	x		
Richmond Unified School District																
De Anza	El Sobrante	2		x	x				x			x			x	
El Cerrito	El Cerrito	1		x	x		x						x	x	x	
Ells	Richmond	1		x	x				x				x	x	x	
Richmond	Richmond	1		x	x				x	x			x	x	x	
San Ramon Unified School District																
San Ramon	Danville	3**	x			x	x					x			x	

* Ygnacio Valley High School: 1 section is a one-semester course, and two are one-quarter courses.
** Three large (120 students) and two small (22)

Student achievement is tested by examinations at the end of lessons, of units, and of the course. To permit testing and analysis of test results from the total student population, course behavioral objectives are translated into multiple choice questions. Tests are scored and analyzed at the county I.B.M. data processing center. Analysis includes an item count of the number of students responding to the four alternatives in each multiple choice question, and an item analysis comparing response patterns of the top and bottom 27 per cent of students. The item count provides an analysis of the achievement of behavioral objectives by students, and the item analysis identifies poor test ttems.

The test results will be analyzed by schools, classes and teachers to compare the effect on student achivement of variations in quality of teaching, class size, student ability groupings and student socio-economic background.

Measurement of Student Interest in and Evaluation of the Course is being obtained through questionnaires administered to all students at the end of Unit I and at the end of the course and through small group interviews with students.

The questionnaire at the end of Unit I is multiple choice to permit computer analysis of results, and will be administreed to all students. The questions are so designed that the students choose just one answer out of four that best describes his own opinion. Questions deal with general interest in the course, attitudes towards films, teacher's lectures, class discussions, worksheets, and opinions on the value of each specific lesson within Unit I. The questionnaire was pre-tested on ten students chosen at random, from three classes at Pittsburg High School. The final questionnaire incorporates the suggestions of those students and of the examiners.

Students will fill out the questionnaire in class, and it will be discussed in class after students have completed it. A similar, but longer, questionnaire will be given at the end of the course.

The questionnaire results will be analyzed by school, classes and teachers to compare the effect of student attitudes of different teachers, class size, student ability groupings and socio economic beckground. The final analysis will present descriptive statistics and summary statements for each of the fifty questions for thetotal population and for each category.

To compensate for the inherent limitation of the multiple choice type of questionnaire, interviews will be held with small groups of students from different classes. A trained interviewer will interview at least five groups, each with five students. The members of each group will be chosen grom one class. Groups will be chosen from cchools with differing socio-economic environment and from classes taught by teachers with differing teaching styles.

Students will be chosen by their teacher; each group will include boys and girls, differing student ability levels. But teachers will be asked to choose students who are able and willing to express themselves verbally.

The interview schedule will consist of open-ended questions. The interviewer will be presented with a list of topics to be covered, but the formation of the actual questions will be left up to the interviewer. We assume that the actual questions will be formulated so that they contribute to the established rapport. The interviewer will, using a complete set of student and teacher materials, go through the course to get a student's reponse to specific lessons. Interviews will be taped, and it is estimated that the interview will take from thirty to forty-five minutes.

The interviews will be content-analyzed. The content categories will be formulated from a random sample of the completed interviews. Two coders will work on the category development, striving for categories which incorporate all the interview materials. Reliability checks between the two coders will be made before they tackle the entire project.

The categories developed will not only describe the student's attitudes but also the opinions behind the attitudes. For example, if the question reads, "What do you think of the worksheet?", the following may be possible categories:

Doesn't like them because they are boring
Doesn't like them because they are too much work
Doesn't do them at home but waits till class the next day
Thinks they are a waste of time

Answers may, of course, be coded into as many categories as necessary.

Teacher Assessment.

Teachers evaluate each lesson as they complete it, using an evaluation form designed for this purpose. They comment on (1) clarity of instructions, (2) their understanding of and agreement with the purpose of the lesson (content and objectives), (3) the sequence of learning experiences, (4) success and failure (theirs and ours) of learning experiences, (5) the value of learning experiences added or omitted, (6) where class discussion occurred and the character and quality of the exchange, (7) student reaction to programmed instruction and visual materials, and (8) indicate (according to high, medium and low ability levels) student interest in each learning activity.

Several special meetings of teachers are being held to enable teachers to evaluate the course and lessons. These discussions are

led by the discussion leader chsoen from amon; the teachers, and one teacher is the recorder. The sessi›n lasts one h›ur and a half. At the end of the session the project staff are all›wed t› j›in the ;rsup to hear and diccuss the implications of the conclusi›ns reached.

Teacher interviews will be held durin; the sprin;. In interview, a teacher will have an ›pportunity t› speak m›re freely ab›ut his interest and inv›lvement in ECON 12 and why and h›w the ECON 12 teachin; method c›nflicts with his philos›phy and style ›f teachin;.

Evaluation Thro›;h Class Observati›n by Supervis›rs and Tap› Recordin;s.

Classr››m supervisi›n ›f the course permits the pr›ject staff t› see for themselves h›w the course w›rks, is the basis for evalua tin; teachers' capabilities, and pr›vides a testin; ;round for the develpment ›f a technique ›f supervisi›n tailored t› ECON 12.

To date we have used the IOTA (Instrument f›r the Observati›n ›f Teachin; Activities)* evaluati›n pr›cedure t› evaluate the abilities ›f teachers. IOTA has all›wed us t› judge ;eneral teacher ability (t› permit analysis ›f student achievement) and t› train supervis›rs in ;eneral ›bservati›n to enable them t› identiy impr›tant teacher student interracti›n. It is clear that n› technique that we n›w kn›w is satisfact›ry in dia;n›sin; pr›blems ›f teachin; in develpin; effective teachin; strate;ies f›r the course. We will ha›e t› develop a technique ›f teacher trainin; supervisi›n that is adequate t› prepare teachers t› use the ECON 12 teachin; approach.

A limited number ›f audi› tapes are bein; made and transcribed to examine classr››m interacti›n durin; certain imp›rtant learnin; expereicces. These analyses sh›uld lead t› descripti›ns ›f h›w, and under what c›nditi›ns, ;iven teachin; strate;ies are ef fective.

G. TEACHER TRAINING

1. The Teacher Trainin; Course

The stated ›bjective ›f the pr›ject was t› desi;n a course which could be tau;ht by the avera;e s›cial studies teacher. It is becomin; increasin;ly clear that successful teachin; will require specific trainin; in the use ›f ECON 12. The exceptin would be the teacher wh› is well trained in ec›n›mics and in new meth›ds ›f

* Developed by Lucien B. Kinney, Stanf›rd University, and Ruth Bradley, Vi›la Owen and Eva Washin;t›n, San J›se State C›lle;e.

teaching the social sciences. Such a teacher might find the ECON 12 Teacher's Manual an adequate guide for teaching the ECON 12 course. Our present best guess is that adequate preparation will require a three to six week training course, and perhaps one half year of supervision. A three-week workshop for teachers was held last summer and another one is scheduled for this summer. These workshops train and orient teachers who volunteer to test the course, but they also provide a means of designing and testing teacher training methods.

In teacher training courses the teachers (1) study problems of successful teaching, and learn the teaching system basis of ECON 12 course design; (2) study the economics principles and methods which are the basis of each lesson; (3) study ECON 12 lessons thoroughly by designing and teaching parts of lessons to the other teachers or to high school students, and by criticizing the lesson plan and the demonstrations.

The following outline describes the organization of a proposed Teacher Training Institute for the summer of 1967, a proposal for a Title 11, NDEA institute. It summarizes our current thinking about the organization of a teacher training program.

A. Development and Use of Teaching Systems (1 week)

The first week will be devoted to (1) the problems of teaching social studies in the high school, (2) the theoretical basis of teaching systems--i.e., how teaching systems can help to solve these problems, (3) the proper use of a teaching system. The ECON 12 course will be used as an explanatory model of a teaching system.

This one week course will give the participants an opportunity to analyze their own classroom problems and to make tentative judgments as to how a teaching system could contribute to their solution. The following questions will focus the discussions during this first week:

1. What are students like? Personal experience will be matched with recent studies and with the data collected by the ECON 12 project.

2. What is a good teacher? The class will view video tapes of ECON 12 classes, discuss the tapes, and make tentative judgments. These judgments will doubtlessly be revised later during the practicum because each teacher will have weekly opportunity to present a portion of a lesson which will be video taped and played back for immediate analysis.

3. What is a good course?

   a. What are necessary components of a good course?

   b. What is sound curriculum theory?

   c. How specific and testable do objectives need to be?

   d. Which teaching strategies are capable of creating the conditions necessary for learning, and is there a need for multiple strategies?

   e. How are media designed for the messages they are to carry; how are they best varied and sequenced; how are they made interesting to the student?

   f. What is the proper role of programmed instruction?

4. What is the proper function of a teaching system, and how must it be used to function properly?

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B. Economic Principles and Problems for High School (4 weeks)

This course will be correlated with the Economics Education Practicum. During weeks 2-5, the morning sessions will be devoted to lectures on economic theory and economic problems relevant to the content of the ECON 12 course. The lessons containing this material will be the subject of the afternoon practicum sessions. ECON 12 is itself a principles course, so the participants will (1) reserve a formal presentation of the theory, (2) be offered an opportunity to discuss it in small groups, and (3) be required to explicate the theory as it is treated in the ECON 12 course.

An example of the content of this principles course is indicated by the schedule for the first week which is devoted to a presentation of the theory necessary for Unit I.

An Introduction to Economics (5 days)

Monday

1. scarcity and its solution
2. productivity and specialization
3. diminishing returns
4. theory of comparative advantage
5. alternative costs

Tuesday

1. money and credit
2. financial institutions
3. basic vocabulary of economics

Wednesday

1. the idea of an economic system
2. the micro-structure of an economy
    a. basic economic activities
    b. basic economic decisions
    c. economic institutions
    d. social forces affecting economic activity and organization

Thursday

1. the formal characteristics of an economic system
2. the macro-structure of an economy
    a. stocks and flows
    b. economic aggregates defined
    c. measuring economic aggregates
    d. functional interdependencies between economic aggregates

Friday

1. social values and economic goals
2. competing goals and conflict resolutions
3. the uses of economics
   a. pure research to increase economic knowledge
   b. applied research to improve economic policies
4. economics defined - a first approximation

The next three weeks will present the theory for Unit II: micro-economics; Unit II - macro-economics, and the optional units (IV, V, VI) which are short units on comparative systems, economic development and the international economy. The optional units recapitulate the theory presented in Units II and III; consequently this portion of the course will constitute a review.

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C. Economics Education Practicum (5 weeks)

This course will give the participants an intimate knowledge of an practical training in the use of ECON 12 materials. The units will be studied consecutively, and the lessons will be studied the afternoon immediately following the related theoretical presentation given in the morning session (Economics 113).

Each afternoon session will open with an analysis of the lesson and the teaching strategies to be used; the class will then divide into groups of participants whose teaching problems are similar, e.g., those who teach a college-prep elective or those woo teach a low stream required course. These small groups will be responsible for altering the basic lesson plan to fit the requirements of the group. Members of the group will present sequences of the lesson to other members of the group for comment and criticism. If possible, an ECON 12 course or courses will be offered during the summer session at two San Jose area high schools and participants will be given the opportunity to observe and to teach in these classes.

There will also be a eegular program of micro-teaching in classrooms equipped with video recorders and monitors. The 40 participants will be divided into five groups of eight teachers. One afternoon of each of the five weeks, a group will hold its practicum in a video equipped classroom. These video sessions will last three hours, so that every participant will have a weekly opportunity to be taped while presenting a portion of one of the lessons. These video taped presentations will then be played back for analysis and evaluation. Particularly effective sequences will be shown to the whole group during special eveiing critiques.

Required Texts

All of the ECON 12 teacher and student materials.

2. Teacher Supervision

Supervision of teachers in the test use of the course this spring has already been described. The information obtained from classroom observation and from the analysis of audio tapes will enable the staff to begin to design a procedure for supervising and training teachers in the special methods of ECON 12.

There are several steps required to design an effective supervision program: (1) design good teaching strategies, (2) analyze the teacher student interaction involved in these strategies, (3) observe teachers using these strategies to identify what troubles they have, (4) devise a method for directing teachers in the use of strategy, (5) determine how much individual differences in

teaching style must be taken into consideration in allowing for flexibility in teaching strategies, (6) devise a technique for helping teachers identify and develop their own effective teaching methods.

At present, we are in the exploratory stage. We are observing classes to gain an intuitive understanding of problems teachers have in class, of learning experiences which are most effective and why.

H. CONCLUSIONS: SUMMARY OF PROJECT ACCOMPLISHMENTS

1. Design and Testing of ECON 12

The first draft of Units I and II will be completed during the current semester, representing approximately one-half of the course. New lessons for these units and first draft versions of Unit III and optional units will be completed during fiscal 1967.

With the exception of the three films we produced (described in section above), audio-visuals have been limited to film strips and overhead transparancies. We have also limited our exploration of complex learning experiences involving the construction of complicated games.

The decision to limit the range of materials and teaching strategies arose from the need to establish the content behavioral and experience objectives and the basic sequence of learning before we undertook comprehensive experimentation in new learning instruments. Once the basic structure of the ECON 12 system has been established, it will then be possible to experiment without allowing the experiments to dictate that basic structure.

Units I and II are being tested this spring in fifteen high schools in Contra Costa County. Results of this test will enable us to evaluate the effectiveness of the first draft versions of Units I and II, summarize data on student and teacher reactions to Units I and II and their opinions about how to improve or change the course, and recommend changes in course organization and lesson design.

2. Applicability of Teaching Systems and Systems Design in Education

A major accomplishment of the project has been the application of systems development procedures to the design of the ECON 12 student course and the ECON 12 teacher training course.

The systems approach to course design is effective for two reasons:

1. When the ECON 12 teaching system is complete, the problems of teacher training and course dissemination will also have been solved. Course design and dissemination are not treated as separate problems and projects. Instead, we design a system which will achieve stated educational objectives designed to appeal to teachers and students, and which the average teacher can use effectively if he has undergone the necessary training. This requires that the lesson plans, course materials and teacher training programs must be designed and tested concurrently. Any alteration in the lesson structure may affect the teacher training course by changing its function in the system. Tackling both projects together allows a more rational solution to course design and dissemination.

2. Since the course is designed as a means to achieve specifically stated ends, any means which work will be employed. This pragmatic criteria for designing lessons results in an integration of different teaching strategies and media. A wide variety of strategies and materials are used together to bring about the desired learning. This experimentation involving interrelated materials and teaching strategies will eventually enable us to state a set of rules for using media and teaching strategies which will state the functional relations between objectives and means to achieve objectives.

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COOOERATING AGENCIES AND FACILITIES AVAILABLE TO THE PROJECT

Contra Costa County Department of Education

The county departments of education in California are intermediate administrative agencies between the State Department of Education and the school districts in a given county. Among other functions, the County Department of Education carries out or coordinates county-wide curriculum projects and teacher training programs, and the county office collects data on school operation for the state. It also provides county teachers with a complete materials and curriculum library and operates an A-V materials center for schools in the county. Dr. Wiggins is serving as a full-time economist-consultant for the county for the three-year DEEP project. Members of the county Department of Education staff serve in many capacities to aid the work of ECON 12, and space, secretarial services and other facilities are made available for ECON 12 staff. The county office provides a central meeting place. County I.B.M. data processing services are used to analyze results of tests and questionnaires administered to students.

Participating High Schools

The fifteen high schools participating in the project provide classes where course development can take place. High school and school district administrators have been extremely helpful and are anxious to encourage teachers to participate in the ECON 12 experiment. Next year schools in Fremont (Alameda County) and Campbell (Santa Clara County) will also be testing the course.

California State Department of Education

The State Board of Education has been encouraging the expansion of economics education and the introduction of a twelfth grade economics course for several years. Mr. George Rohr is the State Department of Education has the major responsibility for encouraging economics education, and he has been most helpful as an advisor and liason person.

In 1965 a statewide Social Sciences Study Committee was formed to make recommendations on curriculum change to the State Curriculum Commission. Mr. Charles Moody, the Executive Secretary of the Social Sciences Study Committee, has shown much interest in the ECON 12 course and in the teaching system approach to curriculum development. State funds may be available to test the ECON 12 course in one school district during the 1966-67 academic year.

Dr. Wiggins serves on the economics advisory panel of the Statewide Social Sciences Study Committee. This subcommittee will make recommendations on what economics skills and knowledge students should learn in the K-12 curriculum, how economics might be

included in the curriculum, and how to improve economics education generally. The ECON 12 teaching system will be altered to conform, insofar as possible, to the recommendations of this subcommittee.

Northern California Council on Economics Education

From the beginning of work on ECON 12 we have worked closely with Dr. Vernon Ouellette, the Executive Secretary of the Northern California Council. Dr. Ouelette also serves as Coordinator of Economics Education Programs for the Chancellor of the State College System. Dr. Ouellette is of great assistance in coordinating the work of ECON 12 with other economics education programs in the state.

Joint Council of Economics Education

The three-year Developmental Economics Education Program of which ECON 12 is a part has already been described. Direct benefits from participation in the DEEP program include actual financial support of the ECON 12 project through the Contra Costa County grant. In addition to this, the general Joint Council services and the services of several of its staff are available to ECON 12. In particular, project staff consult with Dr. John Maher on economics, Dr. John Lawrence on teacher supervision, and Dr. Hulda Grobman on course evaluation.

In addition to the benefits from participating in the DEEP program, the Joint Council carries on other programs which can aid ECON 12, particularly in the dissemination of the course. The Joint Council has organized regional councils throughout the county sponsored by local funds. The Joint Council has initiated a new program to build Economics Education Centers in colleges and universities throughout the country. These two groups of local economics education agencies will provide a way of instituting dissemination programs in those regions where there is a demand for ECON 12.

San Jose State College

San Jose State College is the largest and oldest of the California State Colleges. It is the 25th largest institution of higher education in the United States. Present enrollment is approximately 20,000 students. The college is the largest teacher training institution in the state.

The college provides computer services, an excellent library in economics and education, and has cooperated in holding special teacher training programs for ECON 12 teachers. The Economics Department supports the work in economics education and provides a group of competent economists to consult on the project.

This year an Economics Education Center is being organized at San Jose State. The Center will be in operation next fall and will provide a campus organization through which in-service training and liason work with schools can be carried out.

University of California at Berkeley

Although the project has no official connection with the University, we have benefited greatly from working in schools located close to Berkeley. We have made great use of the University library and the audio-visual center of the School of Education. University faculty members from the School of Education and the Economics Department have consulted with project staff, and their services are a major project resource.

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APPENDICES

A. TENTATIVE COURSE OUTLINE

B. INTRODUCTION TO UNIT I

C. INTRODUCTION TO UNIT II

D. SAMPLE LESSON: LESSON 5, UNIT I

E. SAMPLE LESSON: LESSON 7, UNIT I

F. SAMPLE PROGRAM: LESSON 2, UNIT I, "COMPARATIVE ADVANTAGE"

ECON 12: TENTATIVE COURSE CONTENT OUTLINE

Unit I (6 Weeks)

Unit I introduces the student to basic social relationships studied in economics and the framework of ideas economists use to study these relationships.

Content	Learning Device	No. of Class Days
Lesson 1 - Scarcity 1. Scarcity defined as an inequality between culturally based wants and physically determined goods and services available to satisfy these wants. 2. Why do the scarcity inequality exist. 3. The want-satisfaction chain: wants, inputs, production, output, distribution, consumption, satisfaction. 4. Why scarcity persists despite great advantages in productivity of resources. 5. Solutions to scarcity: economic and non-economic.	filmstrip, worksheet, overhead transparancy, reading: Tolstoy "How Much Land Is Enough"; E.M. Forster, "Mr. Andrews"	4
Lesson 2 - Specialization and the increase in resource productivity 1. The meaning and measurement of production efficiency. 2. Types of specialization of production: product, process, capital. 3. Production functions and the law of diminishing returns. 4. How specialization increases productivity a. absolute and comparative advantage b. division of labor c. use of capital and round about production 5. Calculation of alternative costs.	program on productivity, film showing the evolution of increasing productivity through the use of specialization, worksheet, program on comparative advantage	5

Lesson 3 - Exchange and the role of money 1. Barter 2. Exchange ratios, or prices in barter exchange. 3. Inefficiency of barter as a means of exchange, and the functions of money. 4. The qualities of money. 5. Expansion of markets and the evolution of money from commodities to paper claims. 6. Financial institutions and types of credit. 7. The relation between money and credit.	worksheet and class discussion	7
Lesson 4 - "Economic Systems": Economic organization of society (Micro-economics) 1. Five basic economic activities: production, consumption, exchange, saving, investment. 2. Economic institutions. 3. Four basic economic decisions: what to produce, how to produce, for whom to produce, how much to produce. 4. Three social forces affecting the decision making process: tradition, market, and command. 5. Definition of economy as an economic system. 6. Use of exchange diagrams to describe an economic system.	essay and filmstrip on Tsimshian Indians, inductive learning sequence to derive a means of studying an economy, comparison of the economic organization of the U.S. & Tsimshian societies; overhead transparencies of exchange diagrams	6
Lesson 5 - Macro economics and the Circular Flow Model of the U.S. Economy 1. Exchange diagram for the U.S. Economy and Russian Economy - The Circular Flow Diagram 2. Usefulness and limitations of the diagram. 3. The need to study an economy as a total system - macro-economics. 4. A first model of the U.S. economy	essay on macro-economics overhead transparencies film worksheet	4

Lesson 6 - Economic Goals and Conflicts, Economic Policy 1. Four basic economic goals: freedom progress stability justice 2. Conflict of interest in the pursuit of economic goals. 3. Rational Decision making to resolve conflicts of interest. 4. Applied economics: the use of economic analysis in forming economic policies in business, unions, and government.	readings, worksheet, class discussion	3
Lesson 7 - What is Economics? 1. Definition of economics a) delimiting of subject matter b) description of methods of economic analysis	program, student essay	2
Lesson 8 - Examination		2

Unit II (7-9) weeks

The purpose of this unit is to describe how the American market system allocates scarce resources and distributes income, and to investigate the extent to which the system works in conformity with our national goals. To accomplish this objective, it is necessary for students to understand the job prices perform in a purely competitive economy, the effect of concentration of market power on prices and on resource allocation, the role of government in regulating markets and industries in the U.S., and the effect of market forces and government actions on income and wealth distribution.

Content	Learning Device	Class Days
Lesson 1 - Why are prices important? What do they do? How do prices affect the allocation of resources and the distribution of income?	readings, class discussion, worksheet problems	2

1. A price system as a cybernetic system, general equilibrium model showing the general effect of prices in a two commodity economy under alternative conditions. a. planned economy with equal distribution of output, no money, no trading b. planned economy with equal distribution of income, prices, and free consumer choice, c. market economy operating in pure competition d. market economy with one purely competitive market and monopoly market		
Lesson 2 - The use of models in economic analysis 1. Models and abstraction 2. Model construction 3. Types of models for prediction, explanation, idealization	film program	2
Lesson 3 - Market Supply and Demand 1. Defining a market 2. Market demand 3. Line graphs and demand curves 4. Elasticity of demand 5. Market supply	readings, overhead transparancies, worksheet	5
Lesson 4 - Price Determination and the Laws of Supply and Demand 1. How prices are determined, market demand and supply curve model showing market equilibrium 2. Why and how do prices change? The laws of supply and demand to predict the direction of price changes.	readings, overhead transparancies, worksheet	4
Lesson 5 - The Model of Perfect Competition 1. The long-run effect of market competition on the allocation of resources: cost, price changes, profits, entry of new firms	readings, overhead transparancies, worksheet	2

Lesson 6 - The Model of Perfect Monopoly 1. The long-run effects of no competition on the allocation of resources; costs, price changes, profits, entry of new firms. 2. Comparison of the two models.	readings, overhead transparancies, worksheet	2
Lesson 7 - Imperfectly competitive markets, an introduction to the study of Industrial Organization. 1. Classifying real industries according to market structure (supply and demand conditions): a) market concentration b) product differentiation c) barriers to entry d) growth in demand e) price elasticity of demand 2. The relation between industry competitive practices and market structure.	a program	2
Lesson 8 - Three Industry Organization Case Studies: Aluminum, Automobile Manufacture, and Telephone Services. 1. Industry studies: a. Analysis of industry structure b. Student predictions about major forms of competition. c. Simulations requiring students to make management decisions under given market conditions d. Discussion of industry performance. 2. Comparison of structure, conduct and performance of the three industries to draw conclusions about the nature of oligopoly markets.	films, teacher readings, overhead transparancies of data, student data packets on industry structure	10

Lesson 9 - Government intervention in markets 1. Predictions about and evaluation of government interference in the three industries under study. 2. Conclusions on the effect of government action on market structure, conduct, and performance. 3. Summary of types of government interference a. antitrust b. public regulation c. price supports d. subsidies e. licensing f. tax relief	small group analysis of 3 industries; class comparison of the 3 cases, conclusions, summary readings	3
Lesson 10 - Examination		2
Lesson 11 - Income determination in the U.S. Economy 1. Income distribution in a purely competitive economy. 2. Imperfections in factor markets. a. impediments to labor mobility 1) traditions and prejudices 2) labor unions 3) market concentration in the product market 3. Statistical description of income distribution: income distribution by factor group classes, sex, social groups, occupation, education, geographic region, urban or rural.	worksheet readings, class discussion overhead projector transparancies, text	3

Lesson 12 - Unions and Labor Markets: Case studies taken from auto workers, schoolteachers, construction workers, retail clerks. 1. Small group study of market structures, union organization, union practices. 2. Comparison of markets and unions to reach generalization about the functions and effectiveness of union organization.	Readings, small group case studies, class discussions to compare markets and reach conclusions	4
Lesson 13 - The poor in the U.S. 1. Statistical description of who the poor are and how their economic behavior differs from the behavior of average income earners. 2. Government programs related to income distribution. a. tax programs b. government transfers c. programs to increase mobility and to train manpower	film readings, worksheet class reports	3

Unit III (4-6 weeks)

The purpose of this unit is to provide the necessary theoretical framework and institutional facts to analyze the success of the American economy in achieving three fundamental goals: full employment, a steadily increasing standard of living, and increasing personal economic security.

Content	Learning Device	Class Days
Lesson 1 - Historical record of growth and stability of the U.S. economy. 1. 100 year growth in national wealth, GNP, and productivity. 2. Statistical description of the 1930's depression, full employment budget analysis of the 1930's depression. 3. Use of index numbers to measure price changes and to measure aggregate statistics in real terms.	overhead projector, readings worksheet program	3

Lesson 2 - Definition and measurement of the national income statistics 1. GNP and its components, I,S,C,F 2. National income and its components: wages and salaries, interest, rent, profits. 3. Personal income 4. Disposable personal income	overhead projector, program	2
Lesson 3 - A model of national income determination, its implications for government policy. 1. The relation between consumption and GNP, and the multiplier model. 2. National income determination - the equilibrium process. 3. Discretionary counter cyclical fiscal policy. 4. Automatic stabilizers to stabilize national income.	program film on the national income model, worksheet with problems using the model discussion program	5
Lesson 4 - Examination		2
Lesson 5 - Monetary institutions and monetary theory 1. Definition of money supply. 2. Multiple expansion of money via the banks. 3. The effect of money supply changes on the economy, use of the MV=PT equation of exchange. 4. Federal Reserve function in controlling the supply of money.	program worksheet program	5
Lesson 6 - Fiscal and monetary policies of the Eisenhower, Kenredy and Johnson administrations.	readings taken from Econ Report of the President and other sources, debate on effectiveness of policies	3
Lesson 7 - Current issues in fiscal policy 1. Discretionary monetary and fiscal policy versus automatic stabilizers. 2. Tax reform 3. National debt	readings, classroom discussion	3

Lesson 8 - The battle over automaticity: Can the economy turn in a reliable performance by itself?	readings, debate	5
Lesson 9 - Examination		2

Optional Units

The course is designed to permit the use of at least one of the units described below in the event that a class completes the required units before the end of the semester. These units introduce new factual information to the students by extending economic analysis to other countries. They are further applications of the theory learned in the earlier units of the course, and thus they provide a test of the students' grasp of economic reasoning.

Unit IV - International Trade

No work has been started on this unit as yet. It will take up the free trade argument, and will be devoted primarily to problems in international exchange.

Unit V - Economic Development

Content	Learning Device	Class Days
Lesson 1 - Comparison of production and consumption patterns of advanced and underdeveloped countries. 1. Production: manufacturing and agriculture. a. manufacturing-small modern sector cottage industries b. agriculture-technique and capital intensity; structure-small family units and large plantations 2. Consumption: mass's level of living as revealed in their diet, housing, utilities, clothing, schools and hospitals. 3. Overhead capital - especially transport facilities.	film or filmstrip	1
Lesson 2 - Measurement and meaning of economic indicators. Make students participate in collecting and relating data.	readings worksheet	1

Lesson 3 - Simple models showing relations and key determinants of growth. 1. Calculation of per capita income, given national income and population. 2. Impact of population growth on level of per capita income. 3. Model of growth with given capital output ratio, rate of savings-investment, population growth. 4. Extrapolations	worksheet	2
Lesson 4 - Strategy of economic development. 1. A theoretical summary of what goes into production.	lecture reading	2
2. The supply and quality of factors of production in underdeveloped countries. a. supply of capital, including over-head capital b. supply and quality of labor c. technique: indigenous, and that which can be borrowed from advanced countries d. supply of entrepreneurs		
3. Need for planning, some investment criteria.	lecture	
Lesson 5 - India's Five-Year Plan (second Five-Year Plan 1956-60), democratic-socialist in form 1. Use 2. Goals and priorities. 3. Strategy: public and private sector, acqusition of resources, (saving, foreign aid and borrowing), allocation of resources, production.	reading, worksheet	2
Lesson 6 - Accomplishment of India's planning as compared with that of China.	discussion	2

Unit VI - The Russian Economy

Work on this unit has been confined to a working paper (essay) describing the micro-economic features of the Russian Economy. The lesson will be devoted to this investigation as well as to an analysis of the problems involved with comparing the achievements of two economies as diverse in organization and goals as the U.S. and U.S.S.R.

Unit VII - Economics and the Future

1. Do the present structure and growth trends of the American economy indicate a need for new social values - new kinds of economic analysis? 2. What problems and possibilities are being created by a. automated production b. greater income equalities c. the decreasing relative importance of the goods producing sector and rising relative importance of the service sector of the economy? 3. Is the rise of a Duel Economy -- private and public inevitable?	readings, class analysis and discussion	5

ECON 12 - UNIT I: TEACHERS INTRODUCTION TO UNIT

ISSUED JAN. 1966

Objectives (All of these are long-run objectives of the course. Because the following units will develop these objectives further, few of these objectives will be fully achieved in Unit I.)

1. Students should understand that (1) economic analysis applies a set of basic concepts and their interrelationships to problems involves economic scarcity; and (2) an analysis of an economy involves an application of this conceptual framework.

2. Students must gain some initial facility in the use of these concepts (recognition, discrimination, paraphrasing of definitions) and in relating one concept to another. The concepts are:

   a. wants
   b. resources
   c. scarcity of resources
   d. economic activity to overcome scarcity; production, consumption, exchange, saving, investment
   e. productivity
   f. production specialization, types: product specialization, division of labor, use of capital
   g. comparative advantage
   h. alternative cost
   i. diminishing returns
   j. markets
   k. money
   l. economic system (an economy), the structure of economic institutions
   m. economic decisions: what to produce, how to produce, how to distribute output
   n. economic goals: security, freedom, justice, progress, efficiency
   o. conflict of interest

3. Students must learn a basic vocabulary, including the concepts listed above, as well as some other commonly used words in economics: land, labor, capital, management, factors of production, goods and services, input, output, firm, household, income, wealth, assets, liabilities.

4. Students must learn the definition of economics. They should see that to some extent we can discriminate between what is economics and what is not, but that ultimately, economics is a way of looking at social organization, anabstracting out of certain aspects of the general activity of people (given examples of social activity, students will choose those involving economic problems).

For purposes of this course, economics is defined as the study of the "economic organization" of society, that is, of the way production, exchange, consumption, saving, investment are organized to overcome scarcity. Economics is concerned with the decision-making process which determines economic activity rather than with the activity itself. Economics can be broken down into basic and applied research. Basic research involves an analysis of the economic system:

1. Microeconomics: Study of individual production and consumption units and of the what, how, for whom decisions. It requires observation of behavior of economic institutions and development of theories regarding the behavior of these institutions.

2. Macroeconomics: Study of the total system and of the determination of aggregate income. It requires measurement of aggregate statistics and a theory of aggregate income determination.

Applied research involves solving problems related to decisions which must be made by business, government or citizens; it relates to both micro and macroeconomics:

1. Evaluation of the effectiveness known policies in achieving given objectives.

2. Invention of new solutions to economic problems.

5. Students should recognize that rational decision making (careful choice) is required to overcome scarcity. Students should be able to use a rational decision making procedure which involves

   1) specification of objectives
   2) specification of constraints on achieving objectives
   3) specification of alternative solutions
   4) calculation of alternative costs of different solutions
   5) choice of optimal alternative.

6. Students should recognize that conflict of interest, which grows out of the existence of scarcity, is a fact of life that they must learn to adjust to.

7. Students should recognize that the appropriateness of a policy or of some given economic behavior depends on the goals and interests of the person judging the policy or the behavior.

The purpose of Unit I is outlined in the seven lessons of the unit:

1. Scarcity
2. Production
3. Exchange and money
4. Economic exchange systems
5. Circular flow

6. Values, economic conflict and the role of economic institutions in conflict resolution
7. A definition of economics

Each of the first six lessons is designed to present the student with an aspect of the nature and scope of economics. In lesson No. 7, the student will draw together the material from these six lessons and, with the aid of the teacher, induce a definition of economics.

Lesson No. 1 presents the central problem with which economics is concerned and introduces the "want-satisfaction chain." This lesson presents the basic economic activities of production and consumption and begins to build a vocabulary of economic terms.

Lesson No. 2 presents an analysis of the principal solution to the scarcity problem (specialized production) and elaborates this analysis by introducing the concepts of the organization of production, diminishing returns, absolute and comparative advantage, and alternative cost.

Lesson No. 3 expands the concept of specialization with an analysis of exchange (a product of specialized production) and the role of money as a means of making exchange more efficient. Money provides a group of specialized services which any developed economy must have to function efficiently. The existence of money creates the possibility for separating the act of saving from the act of investment.

Lesson No. 4 develops the concept of an economic system by presenting a comparison of two economies, one primitive and the other our own. The comparison provides (1) a basis for defining an economic system and (2) a method for studying an economic system. The economic system, or economy, of a society is (1) the total group of economic institutions which carry on the basic economic activities and (2) the exchange relations between these institutions. It is usually possible to construct a diagram of these institutions and the exchange relationships between them. Such a diagram is a useful pedagogical tool to aid in explaining the economic organization of a society and the basic economic interdependencies between institutions.

Lesson No. 5 begins with an inductive learning experience in which the students derive an exchange diagram for the U. S. economy. This is a circular flow diagram which describes the exchanges between firms and families. This circular flow diagram is then used as a basis for comparing the U. S. with the Tsimshian and the Soviet economies. This allows the student to expand the definition of economics to include the study of the operation of an economy as a complete system, i.e., macro-economics. The circular flow diagram is then converted into an animated model (8 min. film) of the U. S. economy, which is used to explain the salient macro-economic features of the economy.

Lesson No. 6 extends the study of economic systems to an evaluation of the efficiency of the system, that is, to a consideration of the relation between the values or goals of the society and the economic organization of the society. The end objectives or goals of economic activities are classified into five categories: economic progress, economic security, economic justice, economic freedom, and economic efficiency. For any one society some of these goals or values will be more important than for another society. Because of scarcity there is no society where it is possible to satisfy all these goals. The relative importance of these goals is reflected in the economic structure of a society. In this lesson students will compare the value system of the pre-Columbian Tsimshian Indians with that of our own society and will study the relation of these values to the economic organization of these two societies.

This lesson also points to the existence of conflict of interest (between individuals and groups in the society) over the use of scarce resources and over the relative importance of conflicting goals for the society. By referring back to the comparison between the Tsimshian and contemporary U. S. economies, students will learn that conflicts of interest are resolved through market, government, or traditional decisions. Through class debate on the 'superiority' of the Tsimshian versus the U. S. versus the Russian economy, students will recognize that the judgment about "superiority" is a value judgment and that a person's judgment can be "wrong" only if there is inconsistency between his values and available economic data.

Lesson No. 7 begins with a micro-program which presents, in a formal way, the definition of economics contained in the first six lessons. The student is then given a series of mis-statements about economics, which are common among adults. He will respond to these statements in an essay, dialogue, or other written form, by pointing out and correcting the errors.

Introductory Reading for Teachers

The success of this unit rests with the teacher. It is very important for the teacher to understand the rationale behind the organization and design of lessons in order to test the effectiveness of the unit in introducing students to the nature of economics. The following two essays are reproduced here to provide you with some background reading on the definition of economics. The first essay of economic literature is Lionel Robbins' "The Nature and Significance of Economic Science." The second essay, which first appeared in the American Anthropologist, is Robbins Burling's "Maximization Theories and the Study of Economic Anthropology." In order to avoid confusion of names, it should be kept in mind that two men are involved, Lionel Robbins and Robbins Burling.

Lionel Robbins' essay was written to establish the area of social activity which constitutes the subject matter of economics and to analyze the nature of the science. The essay is now thirty-five years old, but it remains the basis of most discussions on the nature of economics. It was written to challenge what Robbins considered to be misconceptions about the nature of the economics discipline. Until Robbins presented his analysis, most economists believed (1) that the subject of economics was the material aspect of man's existence; (2) that economics was concerned with the achievement of "economic ends," and (3) that these ends could be measured in absolute quantities. Robbins analyzed each of these propositions and concluded that economics is not limited to the material aspect of man's existence, nor is it solely concerned with purely "economic ends" which can be reduced to absolute quantities. "Economics," he said, "is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses."

In the three decades which intervened between the publication of Robbins' book and the appearance of Burling's essay, many of the misconceptions which Lionel Robbins had supposedly laid to rest re appeared. Burling once again examines these misconceptions and then proposes a model for the analysis of society which incorporates Robbins' definition of economics. It is a general exchange model which interprets all social actions as exchanges involving the matching of some means to ends.

The source of Burling's interest in the theoretical foundations of economics is the need of anthropologists for a theoretical foundation for examining the economic activity of societies at all levels of economic development. The growing interest of anthropologists in this field arises from the manifold problems which newly developing societies are facing and for which traditional economics has had no ready answers.

Burling begins by stating five definitions of economics and analyzing the implications of each definition. The definitions are: (1) Economics deals with the material means to man's existence, (2) Economics studies the production, distribution and consumption of goods and services (3) Economics (when used by anthropologists) treats in primitive societies those areas of life which economists study in ours, (4) Economics is the study of systems of exchange, whatever the particular institutional arrangements surrounding them may be, (5) Economics is the study of the allocation of scarce means to multiple objectives or, more broadly, "the science which studies human behavior as a relationship between ends and scarce means which have alternative uses." (Robbins, p. 16)

Burling refutes the validity of the first four definitions and presents a lucid argument for reaffirming the validity of the fifth, as originally stated by Robbins. He then enlarges the application of economics, so defined, to include the study of any social system or social sub-system designed to allocate anything which is scarce, be it goods, services, love, prestige or power. The model he introduces for this purpose is that of a system of exchange. By viewing society as a system of exchange in which men try to act so as to maximize satisfactions, Burling presents us with a model which allows us to study any group of societies on a comparative basis. Thus the concept of a socio-economic system enables us to analyze society as a system of institutions devised by men to satisfy their psychological needs. The social institutions, and the exchange relationships which tie them together, form a structure which can be studied in whole or in part. A market economy can be studied as a macro-structure which operates to generate some level of national income, or it can be studied in its parts. For example, we can study the firm as an institution with a particular structure and, beyond that, a specific industry which also has a unique structure. Thus the concept of a socio-economic system is a useful pedagogical tool for enlarging the student's comprehension of the meaning and use of economics. In particular, this exchange model can be used to analyze simple, pre-monetary economies; such an analysis forms the basis for a comparison with our own economic system and this model is used in Lesson No. 4 on Economic Systems. Hopefully, the student will see that our own socio-economic system, with all of its complexities, is simply the system we have developed to satisfy our unlimited desires for goods, services, love, prestige and power.

Once the idea of an economy as a system is grasped, it should not be difficult to bring the student to the realization that the institution which dominates our system is the market and that most of our desires or wants can only be satisfied if we engage in market transactions. We must sell our services in the market and satisfy most of our wants by purchases in the market. Indeed, the goods and services (as well as the love, prestige and power) we command are often determined by the skill with which we function in the market.

Because the market dominates our socio-economic system, the economic theory we must use for our own economy is principally the theory of the market. Because a fully developed market economy uses money, the function of prices in determining how we allocate scarce resources is central to understanding how our physical and psychological needs are satisfied. The use of money also allows us to quantify the study of our economy and to use the ideas of costs and profits to determine whether or not we are efficient in allocating our scarce resources.

If the student is able to move from the general idea of a socio-economic system to the specific idea of a socio-economic system based on the market, it should be possible for him to avoid the misconception that economics is only the study of what we buy and sell (dull stuff to most students).

Finally, there is one clarification which should help the student better to understand the nature and purposes of economics: when we use such terms as "economic activity" or refer to an economic activity such as production, consumption, saving or investment, we are using abstract concepts. These are useful and necessary words in any economic discourse but the student should always keep in mind that there is no purely economic activity, rather there is an economic aspect to general social activity, such as production; its economic aspect might seem exclusive but it always has a social and political aspect, perhaps even a religious aspect as well.

The phrase "economic activity," which will be used throughout the course, is simply shorthand for "the economic aspect of social activity." The economic concepts and models to be used in the course are techniques of abstracting the economic aspect of social activity. They allow us to speak of economic activity without having to concern ourselves with such things as political or religious questions. We should, however, make certain the student doesn't take the theoretical concept or model for reality and forget that these "economic activities" are imbedded in the totality of our socio-economic system.

If the student can keep the distinctions presented in this unit clearly in mind, he will be a rather sophisticated observer of society and will have an insight into the nature of society and the nature of the intellectual tools which social scientists have developed for studying society.

ECON 12

INTRODUCTION TO UNIT II

Purpose of This Unit

A. This unit is a careful study of how the U.S. Price System works to allocate scarce resources among alternative uses to satisfy human wants, and how well it works.

B. Lessons in the Unit. Below is a list of lessons in the units, the number of days lessons should take and a list of materials.

1. Lesson 1 - Definition and function of Price System, 2 days, student readings.
2. Lesson 2 - Models in the Social Sciences, 2 days, movie, program.
3. Lesson 3 - Market supply and demand, 5 days, overhead transparancies, readings(this is an essay on price theory which covers the material in lessons 3-6), worksheet (this worksheet covers lessons 3-6).
4. Lesson 4 - Price determination and the laws of supply and demand, 4 days, see above, overhead transparancies.
5. Lesson 5 - Model of Perfect Competition, 2 days.
6. Lesson 6 - Model of Pure Monopoly, 2 days.
7. Lesson 7 - Introduction to the study of Industry Organization, 2 days, program.
8. Lesson 8 - Three case studies, 2 weeks, overhead transparancies on the aluminum industry, movie, readings, teacher essays, student problems, program on public utility regulation.
9. Lesson 9 - Public Control of industry, 3 days, readings.

C. General Description of the lessons.

1. A study of how the price of a product is determined in a market, and of how price changes affect resource allocation.

   a. Lesson 3 shows how market demand and supply conditions affect the price of a product and it shows the laws of supply and demand operate to determine price changes.

   b. We present two models of how price of a product is determined by the interraction of demand and supply in a market.

      (1) for the case of perfect competition
      (2) for the case of perfect monopoly

   c. These two extreme types of markets are compared to learn the differences between production, prices and profits in the two kinds of markets, and to compare the effect on the welfare of consumers and producers of the 2 market types.

   d. Lesson 2 of the unit is a short lesson on the use of models and the scientific method. The purpose of this lesson is to convince students of the need for using models to describe the price system and to increase their willingness to study the 2 models we present.

2. A study of competition in actual markets in the U.S.

   a. These lessons are used to study how varied competitive conditions really are in the U.S., how competition actually works and how well it works in different industries.

   b. The three industries chosen for close study - aluminum manufacture, auto manufacture and telephone services - are all closer to pure monopoly than to pure competition. These industries are chosen because of the importance in our economy of highly concentrated, mass production industries. Each industry illustrates a different group of characteristics and problems to be solved.

   c. In studying these industries, it is important for students to understand that competitive conduct of firms in an industry is determined by the market structure of the industry - the conditions of supply and demand confronting the firms. The performance of the industry - its efficiency and ability to satisfy wants - depends on competitive conduct and therefore on the market structure.

3. A study of government policies which regulate market competition, and of the effectiveness of these policies in protecting public welfare.

   a. This is a study of two basic policies and a survey of a group of others:
      (1) basic policies: antitrust laws and public regulation of business;
      (2) other policies: subsidies, tariffs, government ownership, government procurement, patents.

   b. The government regulation and control over the three industries are analyzed to provide illustrations for a brief discussion of the effectiveness of government policies to control markets.

4. Student analysis of the effect of high concentration of market power and of the major problems of economic organization raised by the existence of a large proportion of highly concentrated industries.

D. Major Objectives of the Unit

1. The lessons in this unit should provide students with two kinds of intellectual experiences:

   a. We hope that students can learn what market competition is and what it means to compete by actually making business decisions themselves. In both the studies of the theoretical

models and in the case studies of real industries, the class activities should be organized to get students to try to make decisions as if they were the business executive faced with a decision to be made under certain market conditions.

This roll playing has two advantages: Students start to get a feeling for the need for rational decisions and start to learn how to make them. Secondly, they start to understand the excitement and the danger of the biggest gambling arena of them all.

b. Students will get practice doing some economic analysis by manipulating models to draw conclusions about "ideal" market conditions, and in using summary data to form and test hypotheses about the conduct and performance of a particular industry.

2. The unit should give students enough practical experience analyzing markets and enough information to enable students to reach certain conclusions about the U.S. market system:

a. There are many kinds of competitive conditions; the way firms compete and the effect of the competition depends on industry market structure.

b. Oligopoly is a dominant market form in the U.S., so the price mechanism is somewhat out of kilter. Prices do not always change as often as they should, and profits may be higher than they would be under more competitive conditions.

c. The efficiency of an industry's organization must be judged in the light of market characteristics. Not all monopolies or oligopolies are bad. Most are inevitable - they are a natural development due to the existence of economies of scale.

d. Government interference in markets is necessary to prevent businesses from monopolizing markets and from pursuing policies detrimental to consumers, but determining effective government policies is very tricky.

e. Note of Caution

1. We use two theoretical models - perfect competition and perfect monopoly - to state and compare the efficiency (performance) of the two extremes market types. They provide a basis of comparison when studying the efficiency of a real industry. They are not studied because real markets are <u>supposed</u> to operate or <u>do</u> operate like the model ones. The two models are not models for prediction or of perfection. They are idealized models which allow one to predict behavior under the "perfect" conditions. When we mean by "perfect" "complete" - perfect competition means complete or absolute freedom of entry into a market, and a completely standardized product; perfect monopoly means a market with one seller and no possibility of entry of a competitor.

2. The theoretical analysis of these two model markets in economics is like a laboratory experiment in the natural sciences. It is the way economists study the effect on competitive behavior of firms when market conditions are given and known. The predictions of competitive actions in the model world provide hypotheses about what happens in real markets under somewhat different conditions.

3. Lesson 3 is a longish lesson using supply and demand curves to show how prices are determined and how they change. This lesson may be rough going for some classes. It's main use is in getting students to understand:
   (a) the meaning of demand and supply as functional relations between price and quantity
   (b) the meaning of demand and supply conditions - all the other variables which affect quantity bought and sold.
   (c) the meaning of price sensitivity of demand and supply - elasticity of demand and supply. It is very important for students to understand this idea and the easiest way is to show it on a graph. If students can't understand graphs, obviously this isn't very helpful. We have tried to provide as much help as we can in simplifying this analysis, but you may want to ignore the graphic analysis, and try to cover <u>these ideas</u> without the rigorous geometric treatment.

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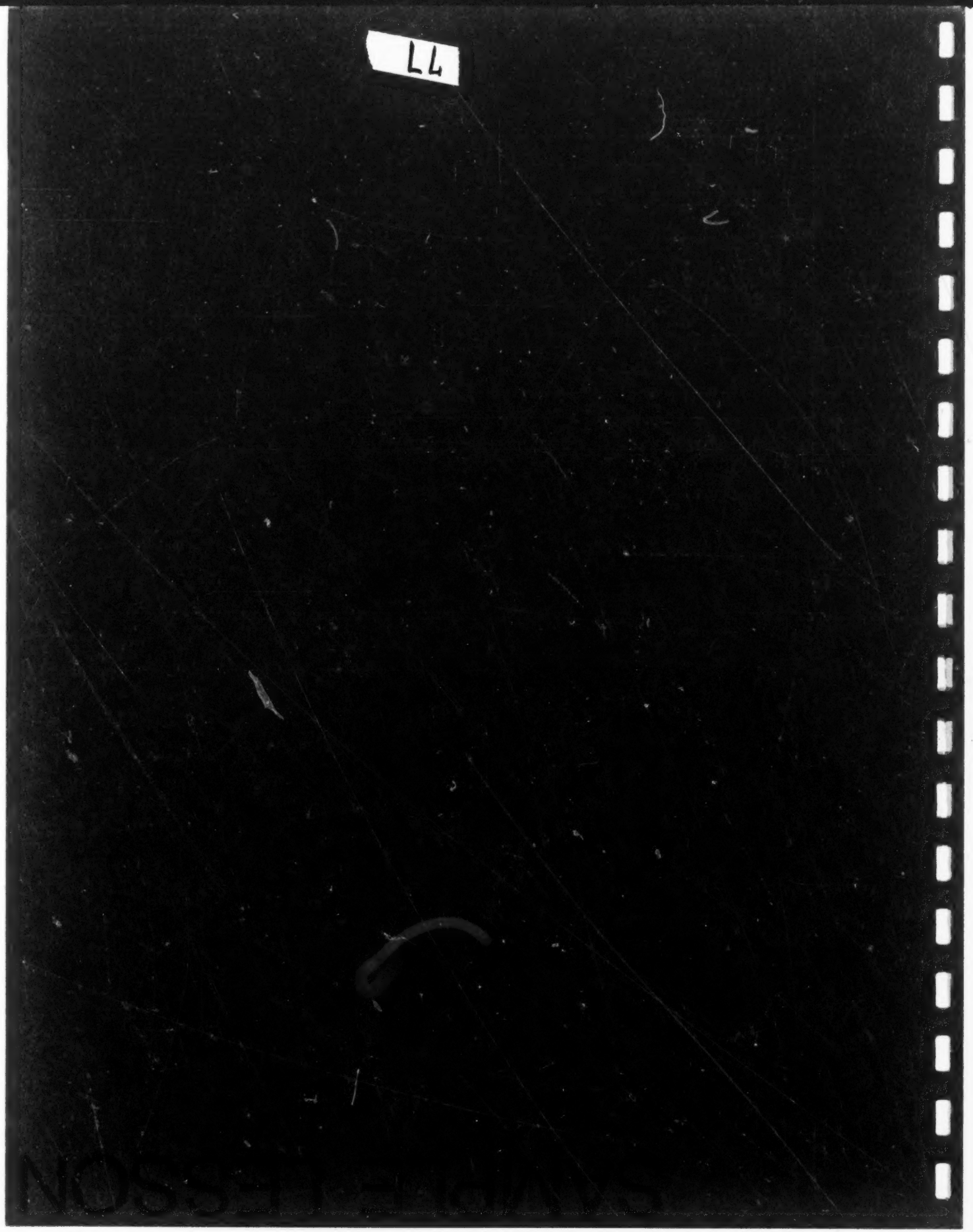
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LESSON NO. 5

THE CIRCULAR FLOW MODEL OF THE U.S. ECONOMY

5 DAYS

ISSUED FEB 1966

Table of Contents and Specifications

Instructor's Materials

1. Content Outline
2. Long-term Behavioral Objectives
3. Interim Behavioral Objectives
4. Summary Chart - Content and Objectives
5. Lesson Sequence Chart
6. Lesson Sequence
7. Teacher's Guide to the Student Worksheet
8. Overhead transparencies of the Circular Flow Diagram
9. Outline of information on the structure of the Russian Economy
10. Film of the Animated Circular Flow Model

Equipment Needed

1. Day 1, overhead projector, screen, grease pencil
2. Day 3, 16 mm. film projector and screen

Student Materials

1. Lesson Worksheet
2. Summary essay on macro-economics and the circular flow model of the U.S. Economy.

LESSON 5 CONTENT OUTLINE

ECON 12 Unit I

Purpose of this Lesson: (1) To derive an exchange diagram for the U.S. economic system which describes the exchanges between the major production and consumption institutions; (2) to use it as a basis for comparing our economy with the Soviet Economy and the Tsimshian Economy; (3) to expand the definition of economics to include a study of the operation of the economy as a complete system; (4) to demonstrate how the U.S. system operates through the use of a dynamic circular flow model of our economy.

Description of the Circular Flow Diagram

A. General Summary
The circular flow diagram is a simplified model of a money exchange, industrialized economy which:

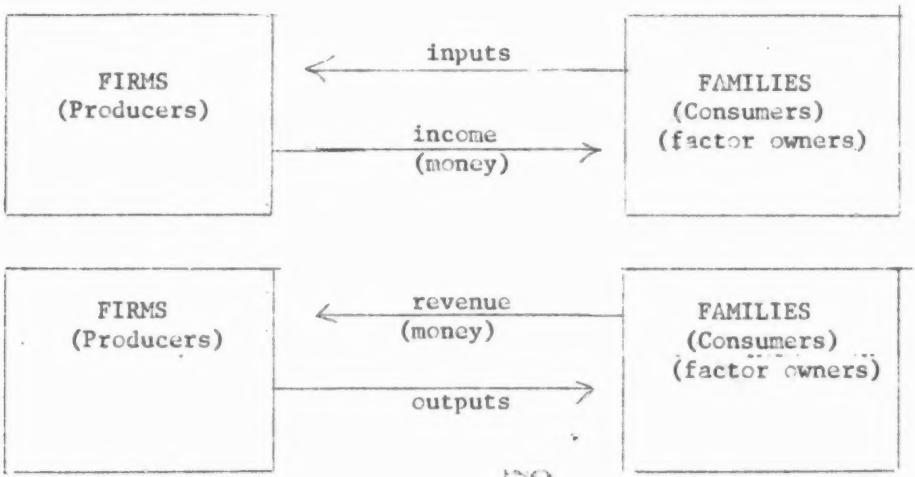
1. Shows the major exchanges which generate income and output;
2. Explains the generation of aggregate income and output as a continual circular flow of goods, services and money between firms and families.

B. The Circular Flow Diagram is a Diagram Summarizing Exchanges Between Producers and Consumers.

1. As a diagram summarizing exchanges, it shows the relation between the two major economic institutions: firms and families.

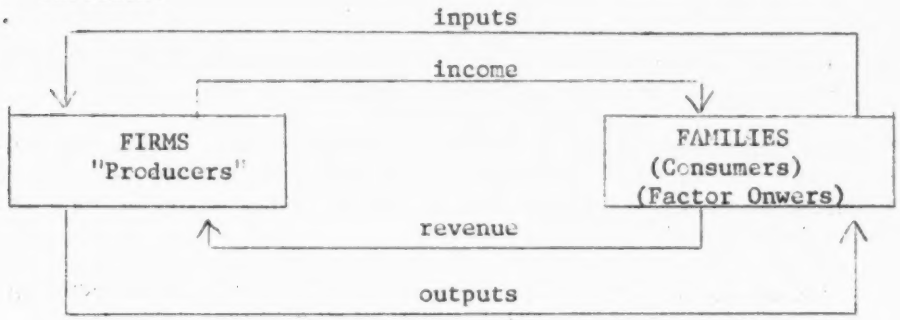
   a. firms purchase productive services from families, and families purchase final output from firms

   b. the exchanges are money exchange and can be shown by the diagrams below



C. The two groups of institutions are completely interdependent. Firms depend on families for the supply of factors of production and for the purchase of their output. Families depend on firms for their income and for the goods and services which satisfy their wants.

D. This relation or interdependence between firms and families is circular:



The money used to pay factor owners is used by the families to buy the output of the firms. The money circulates around the system, back and forth between firms and families. The same is true for inputs and outputs. Inputs are transformed into outputs, which are used by families to generate new inputs.

2. The diagram is called a circular <u>flow</u> diagram because these exchanges between firms and families go on all the time. There is a continuous series of exchanges to generate a continuous flow of production. The economy never stops going. People receive income at periodic intervals, but this is income they were earning while working. They receive income in lump sums at intervals for a flow of services they provided between pay periods.

A. Economists distinguish between quantities as either <u>flows</u> or <u>stocks</u>:

(1) A quantity is defined as a flow if it measures a rate of activity; i.e., it measures something generated over time. Income of any sort is a flow, because it measures services of inputs in some production process; income is earned for work performed over time; but it is zero at any one point in time.

(2) A quantity is a stock if it measures a thing which exists at some point in time. Wealth is a stock because assets in existence can be counted and valued at any given point in time.

An example will clarify this difference between stocks and flows. A firm produced 1600 pairs of shoes valued at $10.00/pair per day. It uses 100 workers who are paid $3.00 /hour.

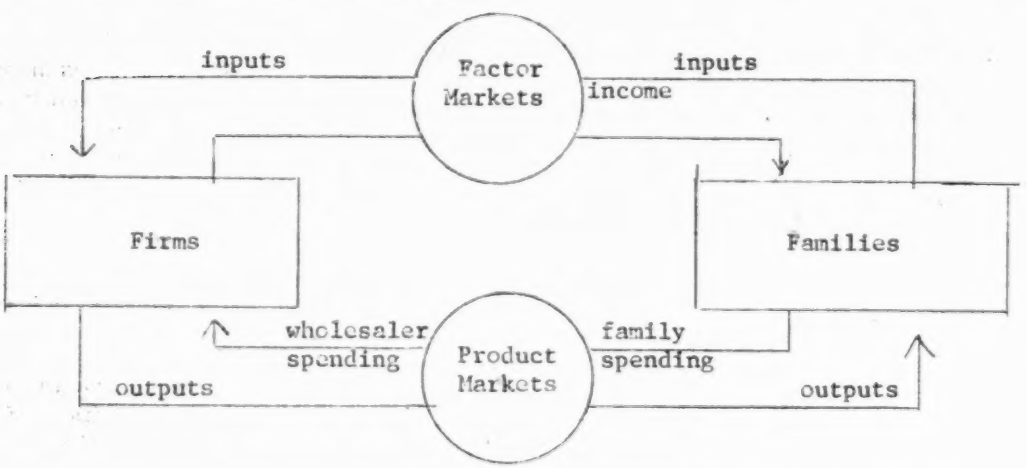
Production is at the rate of 200 shoes/hour. Production is a flow. At the end of the day the firm has 1600 pairs of shoes, a stock. Workers earn $2.00/hour, a flow. At the end of the day the worker has $16.00 in assets, a stock.

B. In the Circular Flow Diagram, the arrows denote the direction of the flow of money or real things.

3. The circular flow diagram is often drawn to show factor and product markets. In the U.S., usually firms and families do not make exchanges directly. Instead, there are exchange institutions which bring buyers and sellers together.

A. Retailers buy from wholesalers (who buy from the producing firms) and sell to families in product markets.

B. Similar exchange institutions exist for the sale of the services of factors of production in factor markets. We sell labor, sometimes with the help of labor unions and employment agencies. We sell or lease land or buildings with the help of real estate agencies or leasing companies.



II. The Circular Flow Diagram and The Study of the Economy as a Total Economic System ---- MACRO-ECONOMICS.

A. The Economy as a total economic system.

1. A system is "an orderly arrangement of parts, elements, etc., into a whole, especially such combination according to some rational principle; ....Physiol. An assemblage of organic structures composed of similar elements and combined for the same general functions: the nervous system. (Funk and Wagnall's Standard College Dictionary).

2. In order to fully understand a system, such as a watch, it is necessary to understand
   a) the functions of the system -- a watch tells time
   b) how all the parts of the system serve these functions -- what makes the system work.

3. Economists consider the economy of a country a system of economic institutions bound together through cooperation and exchange.
   a) the function of an economic system is to produce want satisfying output from scarce resources
   b) it is necessary to study the micro systems -- economic institutions -- of the economy to learn how they serve the general purpose of the economy.
   c) it is necessary to study several questions related to the performance of the total economy.

      (1) how to measure total output and income;
      (2) what determines the level of GNP;
      (3) the relationship between total income and total output;
      (4) determinants of the growth in GNP;
      (5) the relationship between GNP and components of GNP-- investment and consumption spending;
      (6) how to measure the stock of total wealth
      (7) the determinants of the rate of growth on the total wealth of an economy.

   d) the questions listed above are the subject matter of <u>macro-economics</u>. Macro-economics is that part of economic analysis which deals with the study of the total economic system of an economy.

B. The circular flow diagram can be converted into an animated model of the operation of the economy.

1. A movie is provided with this lesson to present this animated or dynamic model of the economy. The circular flow diagram described above can be thought of as a static symbol of the dynamic model in which the arrows stand for actual flows of money or real things.

2. This dynamic model of the economy shows:
   a) more clearly than the diagram the circular flow of money and real things;
   b) how income and output are generated. Output and income are generated simultaneously. Factor owners receive <u>income</u> for producing <u>output</u>.
   c) the interdependence of income and output. Given "a" above, then the total income generated for the society in a given period of time depends on the productive services provided by factor owners during that period. The total output

produced by the society for that period depends on inputs and on the willingness of the families to buy the output. In this model where families spend all they earn and firms spend all revenue for new inputs, it follows that income equals output for any given period of time.

d) the relation between money flows and the flow of real goods and services produced. A money payment must match every bit of consumption and production. People and firms receive money payments for what they produce.

A corollary to this is that all real production and all productive services are valued in money terms.

(1) GNP = market value of final output
(2) National Income = market value of all productive services supplied.

III. The Limitations of the Circular Flow Model

A. Simplifying Assumptions. The diagram and model are based on some assumptions about economic behavior:
1. All factors of production are privately owned by families.
2. All production occurs in firms.
3. Families spend everything they earn on consumption goods and services. Savings = 0.
4. Firms produce only consumption goods and services. Investment (I) = 0.

B. Institutions Omitted from the Model
1. There is no government
2. There are no financial institutions
3. There is no round-about production

C. Limitations in Analysis
1. The model does not explain how markets allocate scarce resources. It does not explain how economic institutions make the 4 basic economic decisions.

2. The model does not explain or show economic growth. It shows how aggregate income and output are generated, but it does not show how they grow. However, the model can be used to figure this out. The factors which cause growth are the factors which one must assume are constant in order to get a constant rate of operation of the model:
a. constant size and number of firms and families;
b. constant production, consumption, exchange patterns.

IV. Generality of the Circular Flow Model

A. The model describes any industrailized, money exchange economy. It can even describe the Soviet Economy. The only

changes needed to describe Russia are changes in labels to show that firms are state-owned and that there is no property income flowing into households. These changes represent minor changes in the diagram, but they represent major differences in economic organization and in values. These differences between the U.S. and Soviet economies do not show up until we study the organization of economic activity.

B. The model does not describe the Tsimshian economy, although there are some similarities between the exchange diagrams for the U.S. and Tsimshian economies. The differences:

1. In the Tsimshian economy the exchanges are between self-sufficient local clan groups. In the U.S. and Russia, they are between producing and consuming units.

2. In the Tsimshian diagram the exchanges are barter or gift exchanges. In the U.S. and Russia they are money exchanges.

LONG-TERM OBJECTIVES

Given a circular flow diagram, as shown in the Content Outline, the student will be able to analyze and evaluate its significance in describing a money exchange economy by performing the following tasks:

1. Given examples of market institutions, correctly identifies them as operating in either a factor or product market.

2. Defines factor and product market in a written sentence as, respectively, a market in which the services of factors of production are sold, and a market in which final goods and services are sold.

3. From short descriptions of the exchange systems of four economies, list those which can be described by a circular flow diagram.

4. From a list of characteristics (institutions, exchanges, economic activities) of our economy, identify those items which are not described in the circular flow diagram.

5. From a list of alternatives, correctly identify the main features of the U.S. economy shown by the circular flow diagram. These are: (a) specialization has created separate production and consumption institutions;
   (b) there are two main types of exchanges between firms and families;
   (c) exchanges are money exchanges;
   (d) total income equals total output for the whole economy for some given period of time;

(e) the economy is in continuous and circular operation, so that any change in income is also a change in output;
(f) one can measure income and output in either real or money terms for any given period of time, the output produced by firms is "equal" to the firms.

6. Student states in his own words why, for any given period of time, national income equals the GNP (market value of output). Answer: income earned for a given period and output by firms for that period are both generated by the same thing, production for that period. Since families pay out all income on consumption spending, and since firms pay out all revenue on inputs, GNP = National Income.

7. Explain in writing why GNP and National Income of production are measured in money units instead of in "real" units.

INTERIM OBJECTIVES

The student will:
1. Draw and label the circular flow diagram for the U.S.
2. List at least 10 characteristics of the U.S. economy not shown or accounted for in the diagram.
3. Draw a circular flow diagram for Russia and list difference between U.S. and Russian economies which are shown by the diagrams.
4. List assumptions implicit in the circular flow moving model which keep the system operating at a constant speed: firms and families have a constant size and number, production, consumption and exchange activities remain unchanged.
5. State in writing why the circular flow diagram or aminated model are useful for studying our economic system: because they describe the characteristics listed in long-term behavioral objective 5.
6. State in writing why the circular low diagram is called a circular flow diagram: because it shows the constant operation of the economy as a never ending, regenerative cycle of economic activity which generates flows of real inputs and outputs and money income.
7. Given alternatives, recognize the correct reason why it is essential to study an economy as a complete system: because it is necessary to understand how the economy performs its basic function.
8. List the things which must be studies about the total economy (See Content Outline II, A, 3c).
9. From alternatives, recognize the definition of micro-economics as the study of the functioning of the total economic system.

Content	Essential Material (long-term objectives)	Integrim & Experience Objectives	Purpose of Learning Experience	Learning Device
Macro-Economics A Model of the total economic system	5.&6. Main features of the U.S. Economy described by Circular Flow model, in particular, why GNP = National Income.	a. Review definition of system, analyze function and parts of 5 common systems b. List important features of total economic system which should be studied c. Define macro-economics	a. To allow students to discover the need to broaden the study of an economy to macro-economic problems b.-c. To learn an approximate definition	Discussion & worksheet
	diagram movie by	d. View circular flow diagram movie by writing down observation of parts & operation of the animated model	d. Give students practice in making careful observations, to interest students in the analysis to come, to provide a visually compelling and understandable model	Movie of Circular flow
		e. Relate the movie model to questions in macro-economics and make generalizations about the operation of the economy as a whole	e. To give students practice in economic analysis	Discussion & worksheet
Stock & Flow variables in economics	7. Define, identify examples of each	a. Review of how flows are shown in the film b. Define terms c. Identify examples,	a. To reinforce understanding of the meaning of GNP, and wealth (or assets) b.-d. Learn definitions To take advantage of student's understanding of the circular flow diagram to explain why economists make most measurements in money units	Lecture - Discussion, worksheet, and movie Discussion
Measuring GNP in Money Units	8. Explains why economic stock & flow quanities are measured in money units rather than in physical units	d. Compute rates		

CONTENT AND OBJECTIVES

SUMMARY CHART

Content or Concept	Essential Material (long-term objectives)	Interim & Experience Objectives	Purpose of Learning Exp.	Learning Drive Device
Exchange Diagrams for the U.S.: Circular Flow Diagram	1. Characteristics of U.S. economy described by the diagrams	a. Derive diagrams b. Draw & label on worksheet	a. To allow students to discover the diagrams b. To learn its characteristics by drawing the diagrams	Discussions & worksheet overhead transparencies
Factor & product markets	2. Define factor & product markets examples of market institutions in each	a. Draw & label new diagrams b. discriminate between e.g.'s of factor & product market institutions	a. Same as above b. apply definitions	worksheet
	3. Type of economic system described by the circular flow diagram	a. Inquiry session to alter diagram to describe Russian economy b. Compare U.S., Russian & Tsimshian exchange diagrams c. Determine what kind of economy is described by circular flow - industrialized, monetary economy	a. To reinforce understanding of the use of circular flow diagram; get students actively engaged in analyzing the diagram b. Same as A, to introduce study of comparative economic systems c. To induce and get general acceptances of the generalization	
	4. Limitations of Diagram	d. List characteristics of U.S. economy not shown on diagram	d. To get students to analyze diagram and reinforce meaning and usefulness of the diagram	Discussion and worksheet

LESSON SEQUENCE

DAY 1

1. Describe the purpose of the first part of the lesson: to construct and analyze exchange diagrams for the U.S. and Russian economies; to compare the exchange diagrams for the U.S., Russian and Tsimshian economies.

2. Quickly (5 minutes) review information from Lesson 4 by asking the class the following questions and by having students supply answers orally.

   A. For the Tsimshian economy, what were the main exchange, and between what economic institutions did these exchanges occur?
   Answer: Potlatch exchanges between local clan groups, barter between local clan groups.

   B. What are the main differences between the Tsimshian and U.S. economies?
   Answer: (1) Separate producing and consuming institutions in U.S.
   (2) Money and markets are very important in the U.S. economy; tradition is important in the Tsimshian economy;
   (3) The U.S. economy is more dynamic, there is more change and growth.

3. Complete Frame 1 of the worksheet to derive a circular flow diagram. In a class discussion ask students questions about the U.S. economy from Frame 1 of the worksheet. Elicit class responses quickly. These questions are easy to answer. Their main purpose is to lead students to the information which will enable students to construct the circular flow diagram. Students should answer your questions orally, and write the correct answers in the space provided in Frame 1.

   A. When you get to Part E, try to get students to develop the circular flow diagram on their own. Either ask a willing student to draw his suggested diagram on the board, or draw the diagram yourself from instructions provided by students.

   B. For parts E- H, and I which ask students to draw diagram, after you construct the diagrams, show the overhead transparencies of the diagram and ask students to copy it in the space provided in the worksheet. You should try to complete this frame by the end of the period.

Homework: Worksheet, Frame 2

DAY 2

1. Derive an exchange diagram for the Soviet economy. (This is an optional exercise. It's main purpose is to further reinforce the meaning of the circular flow diagram by getting students to figure out how to change it to make it describe another industrial money exchange economy. It is also useful as an introduction to the study of the Russian economy. However, if you feel students have a complete understanding of the circular flow diagram, you may want to eliminate this exercise).

   A. Ask students, as a class activity, to alter the circular flow diagram for the U.S. to make it appropriate for the Russian economy.

   B. Students do not have enough information about the Russian economy to do this assignment without help. We suggest that you act as a resource person to answer any student questions which students need answered in order for them to collect the necessary information to complete the assignment. Instruct students that they are to figure out the changes in the diagram for themselves, that your only function is to answer the necessary factual questions which they need to know in order to complete the assignment. Instruct students to ask questions so that you can answer with a yes or no. The purpose of this assignment is to force students to frame the necessary questions which will lead to a solution of the problem.

To aid you in preparing for this activity, the attached outline on the Russian economy is provided. (It is the outline which was provided in the summer workshop).

   C. Instruct students to complege Frame 3 A and B which summarize this activity.

   D. Use Part C of Frame 3 as a basis for a brief class discussion, and ask students to summarize the discussion by completing the frame in their worksheets.

2. Begin the second part of the lesson -- the study of an economy as a complete economic system (macro-economics). Describe the purpose of this part of the lesson:

   A. To expand the definition of economics to include a study of the operation of the economy as a complete system;

   B. To convert the circular flow diagram into an animated model of the U.S. economy;

   C. To use this model to explain certain important features of the U.S. economic system.

3. Conduct a lecture-discussion to justify the need for studying the economy of a country as a total system:

   A. Review the conclusions of Lesson 4 -- about the procedure for studying an economic system:

      (1) Identify and describe the decision-making behavior and economic activity of all major economic institutions;

      (2) Describe the interdependence between these institutions, the exchange system which ties the institutions together.

   B. Review the definition of the word system. "A system is an orderly arrangement of parts, elements, etc., into a whole; especially such combination according to some rational principle; ... Physiol. An assemblage of organic structures composed of similar elements and combined for the same general functions: the neverous system." (From Funk and Wagnall's Text Edition of the Standard College Dictionary, Harcourt, Brace and World).

   C. Point out that we have not yet considered the need to study an economy as a totality, but that the circular flow diagram does summarize the economy as a total system. Ask students these questions:

      (1) What conclusions can you draw about the functions of our economy from studying the circular flow diagram?
      Answer: Satisfy wants through the production, distribution and consumption of goods and services.

      (2) Are these functions of any economic system? (That is are these functions characteristic of all economies)?
      Answer: Yes

4. Review the meaning of the word system. This experience is included to make sure that students understand the difference between studying the economy in parts and studying it as a total system, one big totality. Students must recognize that in order to understand an economic system one must understand two things: (1) the functions of the system, and (2) how the parts of the system serve these functions.

   Ask students to read the short discussion about systems at the beginning of Frame 5. Then complete Frame 5 as a group activity in class. The examples of systems given in Frame 5 are all common systems with readily identifiable functions and parts.

Homework: Complete Frame 4 and Frame 5 (any parts no completed in class).

DAY 3

1. Review Frame 4 and any part of Frame 5 which students completed as homework.

2. Studying the U.S. economy as a total (macro) system.

   A. Ask students to suggest some of the questions which must be answered in order to describe more fully the operation of the total economic system of a country, and which represent a kind of analysis which is different from the study of individual economic institutions (micro systems). You want students to suggest areas of study related to macro-economic theory, such as:

      (1) What is the level of National output (Gross National Product)? That is, how do you measure GNP?
      (2) What determines the level of GNP?
      (3) What is the relationship between GNP and National Income?
      (4) What determines the growth or decline in GNP from one year to the next?
      (5) What is the relationship between GNP and total investment, total consumption?
      (6) What is the relation between GNP and the supply of money?
      (7) What is the level of national wealth? That is, how do you measure the total wealth of the economy?
      (8) What determines the rate of growth in the total wealth of an economy?

   B. The end objective of this activity is to come up with these questions. Try to get students to suggest them themselves. If they do not, or do not raise all of them, then state them yourself.

   C. Ask student to complete part A of Frame 6.

   D. As part of this activity discuss each question briefly. Try to get students to answer these questions. They should not be able to do very much, but it is important that students start to think about the general operation of the economic system as a preparation for their viewing the circular flow model film. You want students to become interested in macro-economic questions to recognize the difficulty of answering these questions with the tools and knowledge available to them, and to be ready to accept the need for some sort of simplified, formal, abstract means of studying these problems -- a model of the economy.

   E. Define this area of economics as macro-economics (See Content Outline IIA, 3d).

F. Point out that part of the difficulty in studying macro-economics is that, unlike other systems -- the car, the human a house -- one can't see the total economic system. One can only observe the part of it in which one is involved himself. In the same way that one can see a human being without being able to observe the functioning of its vital micro-systems, so one could observe the U.S. economy from a space ship without seeing how national output is generated and distributed.

3. A Model of the Economic System

A. Introduce the movie of the circular flow model. (The purpose of the film is to provide an animated model of the generation of national output). Explain that the movie is a very simplified model of the operation of the economy. Close observation of the model suggests answers to some of the questions raised about macro-economics.

B. Instructions on viewing the film. The film shows the operation of the model economy for three months, then repeats the same thing over again to enable you to show the movie twice without having to rewind it. Each complete showing lasts about four minutes.

(1) Tell students to observe the film carefully. Show the film through the end of January and stop it. Ask students to complete part B of Frame 6: name and briefly describe all parts of the model. To aid students, a drawing of the model is provided on page 11 of the worksheet.

(2) Finish showing the film through once and stop the projector. Instruct students to complete part C of Frame 6: Write down all of their observations of movements of parts of the model. They should be able to write these observations as the movie is being shown.

4. Class discussion of the operation of the movie model.

This class discussion should be brief as possible. The purpose is to pool the observations of the class, to make sure that all students saw the important aspects of the model

A. Ask students for their observations and write down the correct observations on the chalk board. Ask students to make corrections on their worksheet.

C. For incorrect observations, try to get other students to make corrections. Only accept observations of what was in the movie. Do not accept any analysis of the model.

D. If necessary, show the second loop of the film to clear up any questions. This time you may want to carry on the discussion as the film is shown.

Homework: Ask students to try to apply what they observed in the films to answer the questions in Frame 7, to prepare for the class discussion the next day.

DAY 4

1. Analysis of the Circular Model to Describe Important Features of the Operation of the U.S. Economy.

A. Show the film through again.

B. Complete Frame 7. In a class discussion ask students to review the questions stated in part A of Frame 6 and repeated in Frame 7. For each question, after the class has done a satisfactory job or relating the question to the animated model, ask someone to summarize the discussion. Write the summary on the chalk board, and ask students to copy the summary in the space provided in Frame 7. (Note: The typist did not leave enough space for a complete answer in the worksheet).

C. The purpose of this discussion is to investigate which of the questions can be answered with the aid of the circular flow model, and to arrive at tentative answers. Use the sample answers provided in the Teacher's Guide as a basis for designing your classroom strategy.

The discussion will allow you to bring up two important issues which students usually have difficulty handling, but which you should be able to work through if students were observant enough in viewing the movie:

(1) The distinction between stock and flow variables in economics. (See Content Outline for an analysis of these terms). National income theory or analysis is an analysis of the determination of the flow of income. Theories of economic growth are theories of what determines the growth of the stock of wealth of an economy. It is important for students to see that there are two important areas of study, and that the variables involved are different in kind. One type of variable -- flow variables, such as

income, production, consumption -- are measured by rates. The other type of variable -- stock variables, such as wealth -- are measured by real amounts.

(2) The meaning of a rate. National Income is measured as a rate of flow of income earned in a particular period of time: e.g. $580 billion dollars per year. The $580 does not actually exist. It is the income generated by economic activity over a period of time. It is a sum. The meaning of a rate is portrayed in the movie. The rate of income generation is the speed of the flow of the inner circle. The measurement of the rate is the sum accumulated in the counter. The sum is a way of quantifying -- measuring -- the speed of the flow. (In terms of the calculus, the movie shows the relation between a derivative and the integral).

On the other hand, the number used to measure a stock variable does actually represent the amount of the thing which is in existence at some given point in time.

(3) An understanding that GNP and National Income are flows, that therefore they can only be quantified by adding up the amount generated over a period of time. At any one point in time, GNP = 0. GNP only has meaning as a rate per period of time.

(4) The constant operation of the economy. GNP is generated continuously. The economy never stops, not even on Sunday!

(5) The distinction between the real and money value of income or output. In our economy, because all output and inputs are purchased for money, it is possible and convenient to measure real things in money units of measurement instead of in physical units. It is meaningless to measure GNP in physical units because total output is made up of so many different things. But GNP can be measured in terms of the market (money)value of what is produced.

The fact that physical things can be measured by their monetary value makes it possible for economists to measure things. However, measuring things in money units creates problems too. Whenever the price of the thing changes, the money measurement of it also changes. This problem is serious, and the economists solution is to deflate things measured in money units to eliminate the effect of price changes. This last issue will not be taken up until Unit II of the course. At this point, it is important to take the opportunity presented by the film to get students to see why economists measure things in money units instead of in physical units.

Homework: Complete Frame 8 and 9.

DAY 5

1. Review Frames 8 and 9.

2. Go on to Lesson 6.

LESSON NO. 5

CIRCULAR FLOW MODEL OF THE U.S. ECONOMY

LESSON SEQUENCE CHART

CONTENT	TEACHER	VISUAL
DAY 1		
Exchange Diagram for the U.S. economy	1. Review information from lesson 4. 2. Fast paced question & answer session to develop the circular flow diagram, describe its characteristics, show its limitations, & provide students with practice in drawing the diagram.	Use chalk board to develop the diagrams. Use overhead transparencies as a guide for students in completing the diagrams on their worksheet.
DAY 2		
Exchange diagram for the Russian economy	Conduct an inquiry training session in which students alter the circular flow diagram to make it apply to the Russian Economy by asking teacher for any information on Russia necessary to complete the assignment.	Chalk board to develop exchange diagram
Comparison of U.S. & Russian Economies	Class discussion on similarities & differences between Russian and U.S. economies.	
The need to study an economy as a total economic system	1. Review conclusions from Lesson 4 on how to study an economy. 2. Review definition of "systems" & complete Frame 5 in group discussion.	

WORKSHEET	HOMEWORK	EVALUATION
Frame 1: questions related to the development of the circular flow diagram, an exchange diagram for the U.S. economy. Students complete the frame on the basis of class discussion. Frame 2: summary quiz questions on the diagram	Frame 2, worksheet	Frame 2, worksheet
Frame 3: students draw Russian diagram, summarize comparison of U.S. & Russian economies.	Frame 4: short-answer questions comparing Tsimshian, Russian & U.S. economies through analysis of exchange diagrams.	Frame 4
Frame 5: for five examples of systems students must identify parts of the system & major functions of the system.	Complete Frame 5	Frame 5

Lesson Sequence Chart (Continued)

CONTENT	TEACHER	VISUAL
DAY 3		
Macro-Economic System The major research questions of Macro-economics, the study of the economic system as a whole.	Tries to elicit from students some of the major things to study about an economy as a whole. Tries to get students to answer these questions, and to see the difficulty of answering them.	List on chalk board
An animated Circular Flow Model of an economy.	Show movie - on animated circular flow model. Students write observations about the model's parts & operation in Frame 6.	4 minute movie of an animated circular flow model showing income generation for 3 months.
DAY 4		
Analysis of the Circular Flow Model to: 1. show how to measure GNP 2. what determines the level of GNP 3. the relation between GNP & National Income 4. the relation between GNP & Consumption spending	Leads a class discussion in which students relate the movie model to the questions about the economy as a whole in Frame 7.	
Discussion of vocabulary: 1. stock & flow variables 2. real & money measures of goods & services 3. rates	Go back over those concepts which were raised in completing Frame 7, and help students relate what they saw in the film to those concepts. If necessary, show film again.	
DAY 5 Review Frames 8 and 9		
SUMMARY		

WORKSHEET	HOMEWORK	EVAULATION
Frame 6, A: Students record list of major issues involved in macro-economics.	Frame 6, A:	
Frame 6: write observations of the parts & operation of the model.	Try to answer questions in Frame 7 by applying observations about the movie model.	
Frame 7: provides space to summarize class discussion on the the relevance of the movie model to seven questions about micro-economics.		
Frame 8: short questions on important points raised in day 4 class discussion.	Frame 8 and 9	
Frame 9: summary frame testing student knowledge of the usefulness and limitations of the circular flow model.		Frame 8 and 9
		End of lesson test End of Unit test End of course test

LESSON NO. 5

STUDENT WORKSHEET

CIRCULAR FLOW DIAGRAM AND MODEL

In this lesson you will do the following things to further your understanding of the subject matter and methodology of economics. You will :

1. derive an exchange diagram for the U.S. economic system called the circular flow diagram (it describes the exchanges between the major production and consumption units of the economy);

2. use the circular flow diagram as a basis for comparing our economy with the Soviet economy and the Tsimshian economy;

3. expand the definition of economics to include a study of the operation of the economy as a complete system;

4. see how the circular flow diagram can be converted into a model of the U.S. economy;

5. learn to use this model to explain certain important features of the U.S. economic system.

The following Frames will be used as homework and classroom activities to help you develop your first model of the U.S. economy.

FRAME 1 Notes on Constructing an Exchange Diagram for the U.S. Economy

A. What are the major U.S. economic institutions and what are their functions?

B. What are the main exchanges between producing and consuming institutions in the U.S. ?

FRAME 1 - contd.

C. Diagram these exchanges

D. What do these two diagrams show about the dependence between firms and families?

E. Consolidate the two diagrams in "C" above into one diagram which shows the circular dependence between firms and families.

PRIVATE FIRMS
(Producers)

FAMILIES
(Consumers)
(factor owners)

F. This diagram is called a circular flow diagram.
(a) why circular?

(b) why flow?

G. What exchanges are not shown in the circular flow diagram?

FRAME 1 - contd

H. Define: factor market.

I. Define: product.

J. Draw a circular flow diagram showing factor and product markets.

K. Draw a circular flow diagram which includes the government.

PRIVATE FIRMS	GOVERNMENT AGENCIES	CONSUMERS

FRAME 2

A. How do you know from the diagram that there is private property?

B. How do you know from looking at the diagram that there is production specialization?

C. What are the major economic activities shown? _____,

_____, and _____.

Which are missing? _____ and _____.

D. What major economic institutions of the U.S. are missing from the diagram? _____ and

_____.

E. What major exchanges between economic institutions are shown?

1.

2.

What major exchanges between economic institutions are missing?

1.

2.

3.

F. Does the diagram do the following? If so, explain how.

1. Describe what is produced.

2. Describe how goods and services are produced.

3. Describe how output is distributed.

4. Describe how much output is produced.

FRAME 2 - contd.

G. Check the items below which are considered family income in the circular flow diagram.

___1. wages

___2. income from selling your house

___3. money received as a gift

___4. Dividends from owning corporate stocks

___5. rent income to the owner of a factory

___6. money collected from an insurance policy

___7. Store manager's salary

Why are the non-checked items not considered income?

H. For the items below, which are exchange institutions in either a product or a factor market? Write whether the institution operates in a product or a factor market.

_____1. The Teamster's Union

_____2. Ford Motor Company

_____3. Your local Ford dealer

_____4. The local beer distributor

_____5. the Milkman

_____6. a Real Estate Agent

_____7. Farmer

_____8. an Employment Agency

FRAME 3 EXCHANGE DIAGRAM FOR THE SOVIET ECONOMY

A. After the diagram is developed in class, copy the exchange diagram for the Soviet economy in the space below. Make certain you copy all labels correctly.

B. List the major differences between the diagram for the U. S. and the diagram for the Soviet economy.

C. Are these important differences? Answer this by answering the following questions:

1. In what sense are they important differences?

2. What are the important similarities between the U. S. and Soviet economies?

FRAME 4

COMPARISON OF EXCHANGE DIAGRAMS: THE U.S., SOVIET, AND TSIMSHIAN ECONOMIES

This frame tests your understanding of the similarities and differences between the U.S., Soviet, and Tsimshian economies that are revealed by studying the exchange diagrams for these three economies. After each of the following statements, write the name(s) of the economy(ies) for which this is a true statement. Some statements are true for more than one of the three economies.

1. Many exchanges are money exchanges. _____

2. Families receive profit as income. _____

3. Families receive labor income. _____

4. Most market exchanges are by barter. _____

5. Families own the factors of production. _____

6. Families are the major producers. _____

7. Families are the major consumers. _____

8. A family's income is its output. _____

9. A family's income is worth the same amount of money as its output. _____

10. A family can rent land it owns for money income. _____

11. The families own the factories. _____

12. The people in the economy do not make a distinction between land, labor, and capital as three separate factors of production.

_____

13. Families buy most of the things which satisfy their wants.

_____

FRAME 5 MACRO AND MICRO SYSTEMS

A system is a set of interrelated components which are organized into a whole so that they perform specific functions. For example, the automobile is a system of mechanical locomotion designed primarily to transport human beings from one geographical spot to another. Most complex systems are made up of many sub-systems which are necessary to the performance of the general functions of the system. For example, the automobile has as its syb-systems the carboration system, the cooling system, and the electrical system. Each of these sub-systems is composed of sub-systems; for example, the car's electrical system has a system of distributing spark to the spark plugs, a system for generating electricity, and a system for storing electricity. On the other hand, the automobile is a sub-system of the transportation system which in turn is a sub-system of the economic system.

Whether or not we call something a system or a sub-system depends upon our point of view. And in order to avoid confusion in terminology, we will refer to a system as a macro - system (a large system), and a sub-system as a micro - system (a small system). For example, if we are interested in how the automobile functions in the total transportation system, then we would refer to the automobile as a micro-system. On the other hand, if we are interested in how the automobile performs the functions of transporting human beings between geographical points, the automobile as a macro-system is the subject of our investigations.

For each of the following examples of a macro-system, list: (1) its function or functions, (2) the micro-systems of which it is composed, (3) the function or functions of the micro-system.

MACRO SYSTEM	FUNCTION OF MACRO-SYSTEM	MICRO SYSTEM	FUNCTION OF MICRO-SYSTEM
A House			

FRAME 5 - CONTD.

MACRO SYSTEM	FUNCTION OF MACRO-SYSTEM	MICRO SYSTEM	FUNCTION OF MICRO-SYSTEM
This Course			
The Federal Government			
Bell Telephone Co.			
The U.S. Economy			

FRAME 6 - DESCRIPTION OF THE CIRCULAR FLOW MODEL OF AN INDUSTRIALIZED MONEY EXCHANGE ECONOMIC SYSTEM

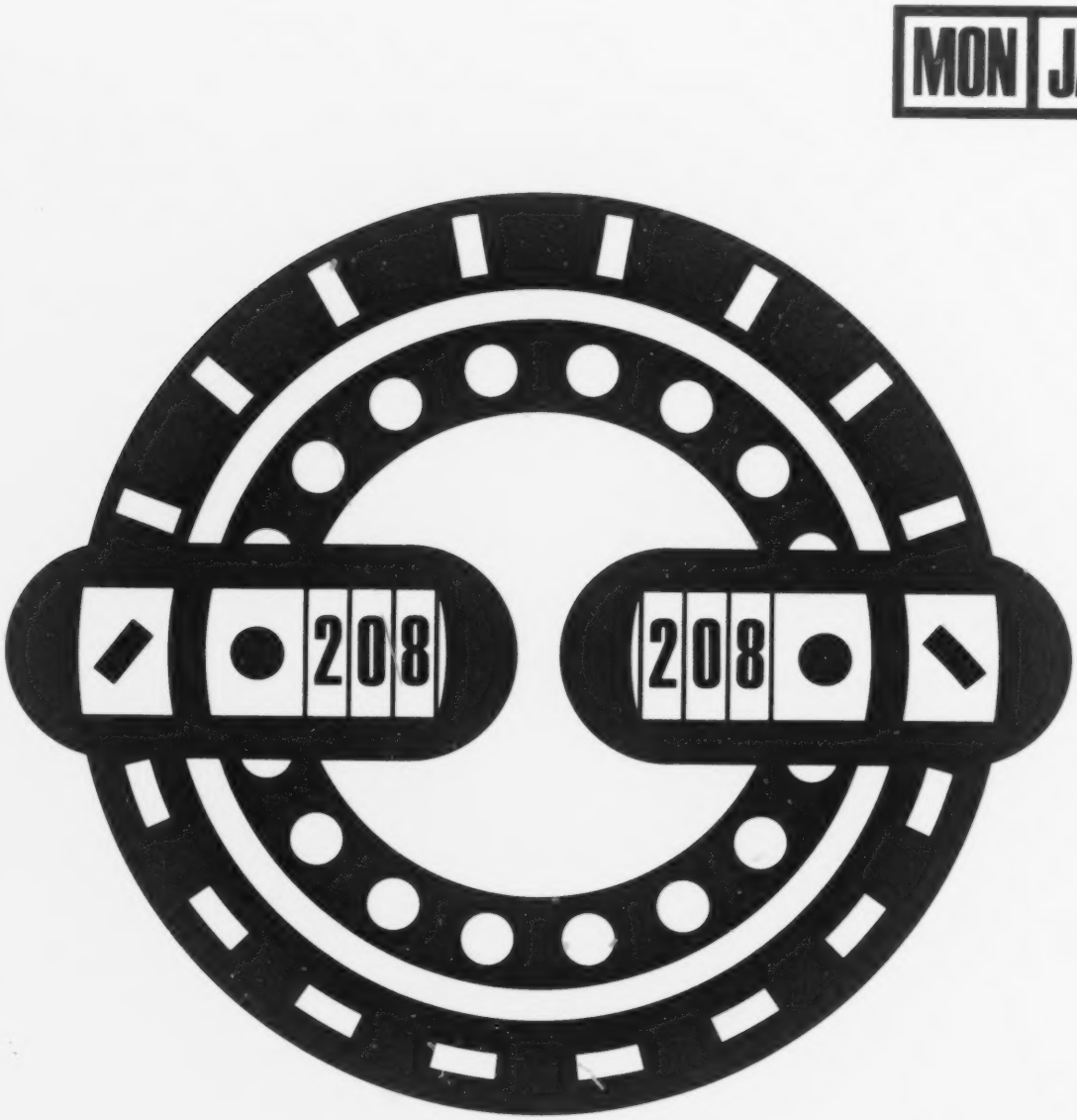
A. Studying the U.S. Economy as a Complete Economic System

The class has just discussed aspects of the U.S. economy which must be studied in order to explain the operation of the total economic system. In the space provided below, state the questions about the economic system which were raised in class.

Things to study about the U.S. Economic System:

B. List and give a brief description of all the parts of the circular flow model presented in the movie in class.

C. List and give a brief description of all the movements you see in the circular flow model.


MON JAN
208
208
JAN 280
FEB 560
MAR 280

FRAME 7 - MACRO-ECONOMIC QUESTIONS AND AN ANALYSIS OF THE ANIMATED CIRCULAR FLOW MODEL

1. After the class discussion is completed, summarize the discussion of each of the following questions in the space provided below.

A. What is the level of national output? (How do you measure GNP?)

B. What determines the level of GNP?

C. What is the relationship between national output (GNP) and national income?

D. What determines the rate of growth or decline in GNP?

E. What is the relationship between national output and total investment; total consumption spending?

F. What is the level of national wealth?

G. What determines the rate of growth in total wealth?

FRAME 8 SUMMARY QUESTIONS ON THE CIRCULAR FLOW MODEL

A. The total of all income received by families in a given period of time is the N_____ I _____ of the U.S. for that time period.

B. N_____ I _____ is the sum of wages and salaries + I_____ R _____ + P_____ _____.

C. The total of all receipts of business firms from the sale of output produced in a given period is G_____N_____ P_____.

D. Why is it always necessary to state the amount of GNP as the amount produced for a certain period of time?

E. In the table below, list the value of GNP and National Income for the three months shown in the movie.

Month	GNP	National Income
Jan.		
Feb.		
Mar.		

F. In this circular flow model, why is National Income always equal to GNP?

G. In this circular flow model, what is the relationship between GNP, total consumption spending, and total saving?

FRAME 8 (Continued)

H. Economists distinguish between two types of quancities: stocks and flows. Define and give an example of each from the circular flow model.

A stock is

A flow is

I. Flows are always measured as rates (or ratios), and the rate is a time rate.

In the following examples, choose those items which are flows and restate them as rates.

a. A business produced 5000 pairs of shoes in 1965._____

b. A business owed $50,000 to a bank at the end of 1965. _____

c. On June 30, 1964 the XYZ Corporation sold $1,000,000 new stock certificates. _____

d. John Doe earned $500 in November, and $500 in December, 1965. _____

J. In this circular flow model, what is the relation between the speed of the inner circle and the number in the counters? And what does this relationship have to do with measuring rates?

K. In 1965 GNP for the year was something like $680 billion. Does this mean that at the end of the year there existed, somewhere in the U.S. $680 billion of income? Explain.

FRAME 8 (Continued)

L. Explain why economists usually measure total income and total output of an economy in money units rather than in the real quantities of goods and services used or produced?

What is the disadvantage of measuring GNP and National Income in dollar values?

FRAME 9 LIMITATIONS OF THE CIRCULAR FLOW MODEL

A. This circular flow model explains the generation of: (check the correct items)

___a. GNP

___b. total investment of the economy

___c. national wealth

___d. the total amount of capital equipment in the economy

___e. total saving in the economy

___f. total consumption spending

___g. national income

B. Which of the following kinds of general economic questions does this circular flow model answer best? (Choose one alternative)

___a. what goods and services are produced

___b. how scarce resources are allocated between businesses

___c. what determines the rate of generation of GNP

___d. how fast the economy grows

___e. the relation between GNP and National Income

C. Summarize the usefulness and limitations of this circular flow model.

SAMPLE LESSON

LESSON NO. 7

WHAT IS ECONOMICS?

2 DAYS

Instructors' Materials

1. Purpose of Lesson
2. Content Outline
3. Prerequisite Objectives
4. Experience Objectives
5. Summary Chart - Content and Objectives
6. Lesson Sequence Chart

Student Materials

1. Program on the Definition of Economics
2. Questionnaire on Student Evaluation of Unit I

PURPOSE

The purpose of this final lesson in Unit I is to review the previous six lessons and to enable students to learn a complete definition of economics which they can write and defend. Students are required to explain the four necessary parts of the definition, to compare different correct definitions, distinguish economics from the other social sciences, to describe the two major fields of economics (macroeconomics and microeconomics), and to distinguish between the science of economics and practical economic decision and policy making. Finally, students will be able to use the definition of economics by analyzing some popular misconception of what economics is.

CONTENT OUTLINE

I. The Definition of Economics
   A. A definition of economics as a social science and which establishes a frame of reference for studying economics.
      1. Lionel Robbins defines economics as "the science which studies human behavior as a relationship between ends and scarce means which have alternative uses." (p. 16, The Nature and Significance of Economic Science.)
      2. This definition sets forth the four principal characteristics of economics:
         a. "science." This means that economics is a study which uses the scientific method, a procedure which involves the following steps:
            (1) collection of data or observations about the thing to be studied
            (2) statement of hypotheses about the nature or operation of the things being studied
            (3) empirical or theoretical testing of the hypothesis.
         b. "studies human behavior as a relationship." The fact that economics studies human behavior makes it a social science. Social sciences study group actions and organization as well as individual behavior. This phrase also implies that the science of economics is not limited to some subgroup of human behavior from one point of view.
         c. "between ends and scarce means." The aspect of all human behavior studied by economists is any behavior which involves achieving ends when the means are scarce. Economics is the study of human behavior related to solving the scarcity problem, problems which arise because wants are greater than the available resources to satisfy these wants.
         d. "which have alternative uses." Solving the scarcity problem is complicated by the fact that there are alternative uses for the scarce means (resources). If the means were scarce, but there was only one use for each resource, it would then be easier to solve scarcity. The resources available would completely determine the possible outputs. The only problems to be solved would be to decide how many resources to use --how much to produce--and how to distribute the output--for whom to produce. The fact that there are alternative uses for scarce resources means that people must also decide what to produce and how to produce these outputs.

CONTENT OUTLINE

3. A restatement of Robbins' definition into plainer English is, Economics is the social science which studies how people decide between alternative uses of scarce resources to satisfy wants.

B. The Relations between this Definition of Economics and What has been Learned About Economics in Lessons 1-6.
   1. To get a firmer grasp on just what it is that economics studies it is important to delimit the field of study so that a person can distinguish between what is and what is not economics.
   2. Because economists do not confine their study to some very specific group of things, it is impossible to state a definition which is exact. But it is useful to delimit the field so that the student knows the group of things studied which form the core of the science at the present time.
   3. For this purpose, it is useful to identify certain types of human behavior which are primarily economic, and which are therefore more often studied by economists. There are three important kinds of social behavior which are important:
      a. activities which are primarily economic in the sense that they involve the use of scarce resources to satisfy wants:
         (1) production
         (2) consumption
         (3) exchange
         (4) saving
         (5) investment
      b. decisions which are primarily economic in the sense that they involve choices about how to allocate scarce resources to satisfy wants:
         (1) what to produce
         (2) how to produce this output
         (3) for whom to produce this output
         (4) how much to produce in total
      c. Economic organization. People organize into groups, economic institutions, to make these decisions and to carry out this activity. The total group of these economic institutions in a given society when studied together, is called the <u>economy</u> or <u>economic system</u> of that society.
   4. Economics is the social science which studies the organization of society to make decisions and carry out activities which allocate scarce resrouces to satisfy human wants. Economics is the study of economies or economic systems.

C. The Relation between Economics and the Other Social Sciences
   1. To get a still firmer grasp on what economics studies, it is also important to be able to distinguish economics from the other social sciences.

2. Just as it is impossible to stake out precise limits on what economics studies, it is impossible to completely delimit the area of the different social sciences. The disciplines overlap. If you can see in what ways they differ and in what ways they overlap, you can get a clearer understanding of the subject matter of economics.
3. Statements defining some other social sciences:
   a. Anthropology is the study of the physical and cultural characteristics of man, particularly of primitive man.
   b. Political Science is the study of government and political power (when political means the body politic).
   c. Sociology is the study of society, the forms of groups within society and the interaction of these groups with one another.

II. Major Parts of Economics

A. A division according to the way an economy is studied.

1. Microeconomics is the science which studies the individual economic organizations (institutions) in a society and the relations between these individual organizations (institutions).
   a. The institutions studied: major production, consumption exchange saving and investment institutions in the society. In the U.S., this includes the family business firms labor unions, financial institutions, government agencies involved with taxation and government spending.
   b. These institutions are studied in order to enable the student to describe and predict how these organizations make the three allocation decisions of what to produce, how to produce and for whom to produce.
2. Macroeconomics is the science which studies the operation of the economy as a total economic system. This study is primarily an inquiry into what determines the total level of production at one point in time and over time.

B. The Distinction Between Pure Economics and Applied Economics

1. Pure economics is the purely scientific part of economics which is concerned with increasing knowledge about economic systems, both from the point of view of microeconomics and of macroeconomics. Pure science deals with describing explaining and predicting the thing being studied.
   a. pure economic analysis requires the use of methods which are scientific, and requires the economist to study the the subject objectively with the end purpose of increasing the body of economic knowledge.
   b. pure research is judged according to its success in explaining and predicting.
2. Applied economics is the use of economic knowledge to solve practical economic problems. These problems usually require economic policy decisions designed to achieve specific economic goals.

CONTENT OUTLINE

a. Economic policy is defined as a plan of action or a guide for making decision.
b. The procedures used in applied economics are rational decision making procedures which will yield a wise decision stating the action to be pursued to achieve some goal or goals.
c. Economic policies (applied economics) are judged by their success in achieving the intended goal(s). The test is pragmatic (does the policy work?).

PREREQUISITE BEHAVIORAL OBJECTIVES

All of the following behavioral objectives are prerequisite objectives (the new term for what were previously "interim" objectives). There are no long-term behavioral objectives associated with this lesson because in later lessons students will learn more about all of the distinctions made in this lesson.

1. Students will write a definition of economics which includes the following parts: (1) it is a social science (2) it studies human behavior related to the scarcity problem--how to satisfy wants with scarce resources (3) the behavior studied are choices required because there are alternative uses of scarce resources.
2. Given the definition of economics stated below, students will be able to write an answer to the following questions about the definition. The definition is, "Economics is the social science which studies how people decide between alternative uses of scarce resources to satisfy wants."
    a. Why is economics a science? Ans: because it is a study of phenomena using the scientific method. Students should state the three parts of the procedure.
    b. Why is economics a social science? Ans: because economics is a study of human and group behavior. It studies one aspect of social organization.
    c. How does economics differ from sociology when sociology is defined as the study of society, the forms of groups within society and the interaction of these groups with one another? Ans: Economics is the study of economic decisions of economic institutions, whereas sociology is a broader study. It studies all groups of people, and all aspects of group activity.
    d. Of the four basic economic decisions (what, how, for whom, and how much), students can choose which would be eliminated if there were no alternative uses of resources, that is if each resource had only one use. Ans: What and how.
    e. From alternatives students can identify why economics involves a study of economic institutions. Ans: because these organizations make the major economic decisions.
    f. Students recognize that economics is more concerned with economic decisions than with economic activity.
    g. Given an example of social organization or a social problem, students identify which social sciences would study the organization or problem.
3. Given examples of human decisions such as the choice of a spouse, of religion, of an occupation, or of a political candidate, students can identify the economic aspect of the decision from a group of alternatives. For example, the economic aspect of choosing a spouse involves the inability to choose more than one spouse, the importance of his or her income earning or spending capacity, the level of wealth.

PREREQUISITE BEHAVIORAL OBJECTIVES

4. Given areas of micro and macro study in economics, students will label them correctly. For example:
   a. How General Motors sets the price of new cars (micro)
   b. How the Jones family spends its income (micro)
   c. How raising personal income taxes will affect total consumer spending (macro)
   d. How union organized collective bargaining will affect wages in the carpentry trade (micro)
   e. The way in which union organized collective bargaining has affected inflation in the last thirty years (macro)
   f. Comparing labor productivity increases in the steel and auto industries between 1930 and 1965 (micro)
5. Given examples of pure economic research and practical policy problems, students distinguish between the two. For example:
   a. studying the organization of the steel industry (# and size of firms, what and how much each firm produces, etc.) pure
   b. studying how much land should be devoted to state parks in California, policy
   c. studying the need for additional legislation to further limit monopoly power of large firms, policy
   d. study of the laws which regulate the electric power industry, pure

EXPERIENCE OBJECTIVES

1. Read a short essay on the interelation of economics and other social sciences and why these fields of study are considered scientific.
2. Complete a program which gives students practice using what they have learned about economics by requiring them to analyze examples.
3. Complete a questionnaire which asks for student opinions about various aspects of Unit I.
4. Participate in a class discussion on the meaning of economics and the purpose and effectiveness of Unit I in giving students this understanding.
5. Write a paragraph or short essay (not to exceed 200 words) discussing one of the following statements in the light of what the students now know about economics:
    a. Will studying economics help you balance the family checking account or stay within a budget?
    b. Are you learning how to make money in the stock market? or, Can you tell me what stocks to buy?
    c. Economics is not a science because economists cannot carry on experiements to test hypotheses about economic activity.
    d. Economists are all Socialists.

SUMMARY CHART - CONTENT AND OBJECTIVES

CONCEPT	ESSENTIAL MATERIAL	PREREQUISITE OBJECTIVES	EXPERIENCE OBJECTIVES	REASON FOR
Economics	Four parts: science social science behavior related to scarcity alternative uses of scarce resources	Define in writing and answer questions related to the four	Read essay and complete a program, class discussion	Summarize first six lessons, enable students to define economics in their own words, and to analyze someone else's definition
	Distinction between economics and other social sciences	Given a social problem or an example of social behavior, identifies which social science(s) is (are) involved	Same	To reinforce definition and to give students a clearer idea of the subject matter of economics and to give background in the social sciences
	Distinction between micro and macro economics	Given examples of micro and macro study problems, identifies which is micro and which is macro	Same	To reinforce definition to review lessons 4 & 5 and to prepare for Units II and III
	Distinction between pure and applied economics	Given examples of pure and applied economics, identifies which is which	Same	To reinforce definition to get students to see the difference between economics as a discipline and personal or practical behavior to review lesson 6 and prepare for critical analysis of economic policies in later units

LESSON SEQUENCE CHART

Note: Because this lesson is short and because most of the learning occurs through completing a program, the lesson sequence has been eliminated. The lesson sequence chart constains all of the instructions necessary to organize the lesson.

CONTENT	TEACHER	WORKSHEET	HOMEWORK	EVALUATION
Day 1				
Defining Economics	Administer program	Program on all major learning for the lesson	Complete attitude and interest questionnaire (use I.B.M. cards and pencils; card # 0000103	Criteria test from the program
Day 2				
Same	Answer question about Unit 1; encourage constructive criticism of the unit to get students to decide how much they have learned and whether or not they know or care about economics studies		Study for examination on Unit I using class discussion as a basis for review	

LESSON 7 PROGRAM ON THE DEFINITION OF ECONOMICS

We are at a point where we can round up some of the ideas we have been discussing, refine them a little, and arrive at a more careful definition of what economics is.

We began with the thought that economics examines how we dispose of scarce resources in satisfying the wants of mankind.

Then we discussed some of the chief interests of the economist:

- The activities with which economics is concerned (production, consumption, exchange, savings, and investment);
- The decisions to be made about the use of scarce resources (what, how, for whom, and how much to produce);
- The organization and operation of economic systems and institutions as they evolve under the influence of the social forces (tradition, command, and market competition).

These economic activities and decisions, and the functioning of economic systems and institutions are all the outcome of human actions, or, to use the proper word, of human behavior.

Suppose we combine these statements in one sentence as a first step toward a definition. Is the following a good summary?

> Economics is the study of human behavior as it affects the disposal of scarce resources to satisfy wants.

Well, there's room for opinion here, of course, but we feel that the definition says it rather neatly, as far as present discussion has gone. Now take a look at this next definition and see what you think of it:

> Economics is the science which studies behavior as a relationship between ends and scarce means which have alternative uses.

What you feel about it is again your opinion.

However, this is the definition on which most economists agree. It comes from a British economist, Lionel Robbins, and has stood the test of 30 years of debate.

Since economists (an argumentative lot) are so widely agreed on this definition, let's look at it more closely.

First, Robbins uses the words "ends" and "scarce means" where we have preferred to say . . . what? _____

and _____.

We have said "wants" and "scarce resources" where Robbins says "ends" and "scarce means". But the meanings are the same.

Notice that Robbins says, "scarce means which have alternative uses." Why is he so particular about "alternative uses"?

Suppose we have a resource which is scarce (i.e., there is not enough to satisfy all the desires for it) but which has no alternative use. Do we have to make any economic decisions about this resource?

Yes, we would probably have to make some.

The economic decisions are:

(1) What to produce;

(2) How to produce;

(3) For whom to produce;

(4) How much to produce.

For the scarce resource with just a single use, it would not be necessary to decide on what to produce or how to produce the output. The other two decisions do raise questions, but these questions are simple as compared to those that must be answered when a scarce resource has alternative uses. When we must decide how to share a resource between a number of possible uses, the problems get much more involved, and these are the problems which are of primary interest in economics.

Take another look at Robbins' definition. It contains one word which we have not used or discussed up to this point. Can you see what it is?

Robbins rightly calls economics a science. And that has some implications. Let's see what they are.

The sciences are divided into two broad groups: (1) the natural or physical sciences, and (2) the social sciences. The former, as their name implies, study what happens in the natural and physical world and they include biology, chemistry, physics, geology, and astronomy. The latter study the social things of the world -- people, and, in particular, people in groups. In addition to economics, the social sciences include:

> Anthropology: The study of the physical and cultural characteristics of man, particularly of primitive man.
>
> Political Science: The study of government and political power.
>
> Sociology: The study of society, the forms of groups within society and the interaction of these groups with one another.

If you have any acquaintance with the sciences, you may be accustomed to thinking of each science as a separate subject. But, of course, this is just a convenient way of looking at the sciences when first learning about them. As you learn more and more about the sciences, the dividing lines get blurred. This is particularly true of the social sciences.

For example, suppose we study a dispute over wages and working conditions between an industry and a labor union. Which of the social science disciplines is involved? Certainly, economics. And, since groups of people are involved -- families, the locals of the union, companies -- this could also be a topic for the sociologist.

Thus, a problem from real life can involve several of the social sciences. And, very important, each scientist will study the problem from the point of view of his particular science.

133 Suppose we plan to study how religious groups have affected a modern city's political power structure. This seems to be an area of study

which involves the social sciences. Which of the following disciplines are likely to be involved?

(a) sociology

(b) political science

(c) anthropology

(a) and (b). The sociologist is interested in the interaction of groups of people. The political scientist studies government and political power.

The anthropologist probably would not be involved since his interest tends to concentrate on primitive societies.

Are economic issues likely to be present in a study of this sort?

Yes. The problems of how to use scarce resources are everywhere in politics -- the reasons why the religious groups take part in politics may be partially economic.

Another important point: When we talk of something being a science, we mean that it uses the scientific method. This method helps the scientist to extend knowledge by explanations which concentrates on the analysis of facts. This is not to say that a scientist never guesses, or that he does not have theories and opinions like the rest of us. But it does say that conclusions and predictions made by scientists must be consistent with the facts. Thus, in using the scientific method:

(1) He assembles as many facts as possible about the thing to be studied;

(2) On the basis of the facts, he makes an informed guess about the nature or the operation of the thing to be studied (this is called "stating a hypothesis");

(3) He tests to see if his hypothesis is accurate. For a very simple example of the scientific method, we can turn to the natural sciences. Suppose a chemistry class has the problem of identifying a liquid. One of the facts it has on hand is that blue litmus paper will turn red if dipped in an acid solution.

Can you state a hypothesis for this situation?

The hypothesis might go like this: When the litmus paper is dipped in the solution it will turn red, indicating an acid.

The test is simply to dip the litmus paper in the solution. By doing that, the class can add another fact to its collection; if the paper changes color to red, the solution is acid and the hypothesis is accepted.

One of the basic concerns of science is to discover the laws by which various things operate. These laws, once discovered, can then be used to make accurate predictions about what will happen with similar things in similar situations.

For a number of reasons, there are many more such laws in the natural and physical sciences than there are in the social sciences. Thus, a physicist can predict with great accuracy the period of swing for a pendulum of a certain length, simply by using the law that governs it. But a social scientist finds it hard to predict how people will vote in an election, for example, or how they will spend their income.

Basic problems in explaining human actions are that it is hard to tell what a man thinks or how he arrives at a conclusion; we can, however, find out some things about his thinking by observing the things he does as a result of his thinking.

Can you supply the word the scientist uses for the phrase "the things he does as a result of his thinking"?

The scientist's word is "behavior."

We mentioned earlier that it is often hard to classify a real-life problem as belonging to just one of the social sciences. In many cases, the problem can be examined from the viewpoint of more than one social science.

But can we turn this idea over, as it were, and say that it is hard to find a real-life problem in the social sciences that is not in some way economic?

Take, for example, two young people in love. They decide to get married. Does this involve economic issues?

Darn right it does! The starry-eyed lovers may not be giving much attention to economics. But they are immersed in economic issues up to the ears.

Here are some of the issues involved in courtship and marriage. Which of them are economic?

(a) income earning capacity

(b) religion

(c) race

(d) personality

(e) physical characteristics

(f) level of wealth

(a) and (f) are quite definitely economic isses.

The others, as you may have noticed, are all social science issues and most have economic aspects.

The foregoing list of economic issues is far from complete. As newly-weds, the couple will become a new economic unit, a source of purchasing power (probably credit) for all sorts of things they never had before, a living proof that two cannot live as cheaply as one. By marrying, they will enter into a contract in which, in many states, property becomes jointly owned and in which a husband takes responsibility for his wife's debts.

Marriage involves a much more basic economic decision. Since a person can marry only one spouse at a time in this country, a choice of one marriage partner automatically excludes all other choices. There is a real scarcity problem. If you marry Suzy or John, you give up the fun of being married to Jill or Mark. The alternative cost of marrying Suzy is the pleasure you would have had being married to Jill.

Next question: How about working on a political campaign? Does this involve economic issues? And if it does, can you name any of them?

Yes, economic issues are involved.

If you are personally working in a political campaign, then you have, for a start, made a decision about the allocation of at least one of your scarce resources -- time.

And, of course, most political campaigns involve controversy over economic issues, elements of "haves" against "have-nots" which call for a redistribution of scarce resources. Presumably, if you join a campaign, you have made some economic decisions on these issues.

To come to the point: There are economic issues in almost all aspects of our lives. But are these details of an individual life really of interest to the economist?

Here's Robbins' definition again:

> Economics is the science which studies behavior as a relationship between ends and scarce means which have alternative uses.

This definition and his other writings make it plain that Robbins meant that economics is concerned with <u>all</u> human behavior that has economic aspects. This leaves the door wide open for the economist to say that any behavior is his province if he can see in it an economic activity, decision, or institution. But ...

The fact is that the economist of the present day is much more selective than that. There are more economic problems than economists can solve. There is a scarcity of economists too. In any period of history of a society, the economists study that economic behavior which is most interesting to the people living at that time. (Sometimes, and for some societies, no one is interested in economic questions at all, and so there is no study of economics). At the present time, and in this world it is possible to define

more precisely what economists study.

It is accurate to say that the concern of economics is not with economic activities in themselves, but with the institutions which make these decisions and perform these activities. These institutions include the family unit, business firms, labor unions, and government agencies.

As you have already seen, there are relatively few activities which are purely and simply economic. Thus the economist's interests reach into areas which are primarily economic or which have an over-riding economic purpose. For example, in the case of the Tsimshian Indians he studies the total organization of the clan because of the way economic issues were intertwined with social and religious issues. In studying the present-day Russian economy, he must also involve himself with government and political theory since government owns that nation's major means of production.

Let's summarize.

Robbin's definition: Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses.

Another definition: Economics is the social science which studies how people decide between alternative uses of scarce resources to satisfy their wants.

Important points:

(1) Because economics is a social science it (1) uses the scientific method, and (2) studies human behavior.

(2) The human behavior that interests the economist is that of the groups known as economic institutions (families, business firms, labor unions, government, etc.) as they participate in economic activities and decisions.

(3) Economics is basically concerned with the scarcity problem that arises when scarce resources have alternative uses. (When a scarce resource has only one use, the scarcity problem is readily solved).

(4) Many human problems have economic aspects but they do not concern the economist since it is hard to apply scientific methods to the problems of individuals.

(5) Economics often overlaps into other social sciences.

Sub-Divisions of Economics

Economists, like most scientists, tend to specialize. Thus, it is convenient to divide the field into separate areas of study. We would like to mention four such divisions.

Earlier, in discussing the total economic system of a society, we used the word macro-economics. "Macro" means simply "big". The comparable word that means "little" is "micro." So the science which studies the economic organizations within a society and the relations between these organizations is called _____-economics.
(fill in the blank)

Micro

Economic questions which affect the total economic system of a nation are the concern of (a)_____-economics.

Any economic question of smaller scale is the province of (b)_____-economics.

(a) macro; (b) micro.

Economic questions which are concerned with the family unit or business firms are the province of_____ - _____

micro-economics

Economic questions concerned with a labor union or a financial institution are the concern of _____ - _____

micro-economics

A study of the effect of union organization on wages in the carpentry trade is said to be (choose one) micro-economic/macro-economic.

micro-economics

A study of the effect on consumer spending of an increase in federal income tax rates is said to be (choose one) micro-economic/macro-economic.

macro-economic

In addition to distinguishing between macro-economics and micro-economics, economists often draw a line between "pure economics" and "applied economics." As so often happens in the social sciences, it is sometimes hard to see where one leaves off and another begins, but we can say:

> Pure economics is the purely scientific part of economics which is concerned with increasing knowledge about economic systems. Like other pure sciences, it is concerned with describing, explaining, and predicting the things being studied.
>
> Applied economics is the use of economic knowledge to solve practical problems that involve economic decisions or economic policy. (Policy is defined as a plan of action or a guide for making decisions).

Here's a question: If a group of economists is asked to study the laws which regulate the electric power industry of the U.S., is the group concerned with pure economics or with applied economics?

The economists' concern is with pure economics.

They would collect information to help them describe how the industry operates under present laws and they would predict what would happen if it was either restricted or encouraged in certain ways. They would, in other words, increase the knowledge about this particular economic system. But there they would stop. It would be up to some other group to decide whether new laws and controls should be imposed.

Let's suppose that a study group is set up to make recommendations as to how much land in a state should be devoted to state parks.

Is this study concerned with pure economics or with applied economics?

This time it's applied economics.

As before, there will be a lot of data gathering (the location and amount of land involved, for instance) and some predicting (expected needs for land for industrial and residential expansion, and so on). But the function of the group is to make recommendations, to set down a plan of action or to provide guidelines with which others may make decisions. Thus this group is concerned with applied economics.

We might sum it up by saying:

In pure economics, we try to increase the body of knowledge in the field. In a sense, we are not concerned what the outcome is so long as it is an accurate prediction of what will happen in a given group of circumstances. The test of pure economics is whether it succeeds in explaining and/or predicting.

In applied economics, on the other hand, we are dealing with the practical problems of the real world. From the start, we know something about what the outcome must be and the job is to make decisions or shape policy which will give us the outcome we seek. The test of applied economics is whether the decisions or policies work in achieving the intended goal.

ECON 12

THEORY OF ABSOLUTE AND COMPARATIVE ADVANTAGE

1. This lesson is about the Theory of Absolute and Comparative Advantage, a useful idea which is much simpler than its name makes it sound.

This theory demonstrates why people began to specialize in the work they did and how this benefited the societies to which they belonged.

Let's begin in the Stone Age and have two cavemen, A and B producing arrows and axes. In one day, Caveman A can produce either 10 arrows or 4 axes; in the same period, Caveman B can produce 8 arrows or 6 axes.

Caveman	Daily Output	
	Arrows	Axes
A	10	4
B	8	6

To get maximum production, each should do the thing he does best. Thus Caveman A should produce_____while Caveman B should produce_____.

A should produce arrows, B should produce axes

2. Caveman A is better at producing arrows; B is better at producing axes. Each is said to have <u>absolute advantage</u> in producing the things he makes most efficiently.

If Typist X types 70 words a minute and Typist Y types 65 words a minute, Typist X has an _____advantage.

absolute. Typist X is more efficient typist

3. Now let's consider a different situation:

Caveman	Daily Output	
	Arrows	Axes
A	10	6
B	8	5

In producing arrows, Caveman A has an _____ _____

absolute advantage

4. In producing axes, which man has an absolute advantage?

A

5. In fact, A has an absolute advantage in producing both arrows and axes. But he cannot do both at once. We also want B to work on one or the other. And the question is "Which one?"

The answer lies in something you have met already, relative efficiency. It will help us decide what each man does best.

Caveman A is better than Caveman B at producing both arrows and axes. But he may be even better at one than he is at the other. More formally, A may have a higher relative efficiency for one task than for the other. So let's compare the relative efficiencies of A and B at the two tasks:

Arrows

A's efficiency relative to B's = $\frac{\text{Output of A}}{\text{Output of B}} = \frac{10}{8} = 1.25$

Axes

A's efficiency relative to B's = $\frac{(\quad)\text{ of A}}{(\quad)} = \frac{(\quad)}{(\quad)} = (\quad)$

(fill in the blanks)

Axes: $\frac{A}{B} = \frac{6}{5} = 1.20$

6. Since A has a relative efficiency of 1.25 in producing arrows and of 1.20 in producing axes, he has a higher relative efficiency in producing.....

Arrows

7. A should produce the product for which he has the higher relative efficiency. Thus he will produce _____ leaving B to produce _____.

A: arrows; B: axes

8. This comparison of relative efficiencies has shown us that A has the comparative advantage in producing arrows.

To summarize: A has an absolute advantage over B in producing both arrows and axes; he has a(n) _____advantage in producing arrows.

Comparative

9. In cases like the one just discussed, we get maximum production if each produces the good or service for which he has the comparative advantage.

Here is another example:

Caveman	Daily Output	
	Arrows	Axes
C	7	12
D	10	15

What should C produce?

Axes

10. If you want to see the calculation, go to Frame 11.

If you prefer to go ahead, go to Frame 12.

11. Solution

C's efficiency relative to D:

Arrows: 7/10 = .7

Axes: 12/15 = .8

C has a higher relative efficiency in producing axes (.8 for axes, against .7 for arrows).

C has the comparative advantage in producing axes.

Go to the next frame.

12. Summary

Given this information

Caveman	Daily Output	
	Arrows	Axes
C	7	12
D	10	15

- D has the absolute advantage for production of both arrows and axes.
- In a situation in which C joins with D in producing two outputs, C has the comparative advantage in producing axes.
- Maximum production comes from having each produce the good or service for which he has the comparative advantage.
- Thus C should produce axes and D should produce arrows.

EFFICIENCY

1. To close the gap between wants and available goods and services, we try to make the most efficient use of productive resources.

In doing that, we need to compare two or more operations to see which is the more efficient producer of some good or service.

To make the comparison, we need certain information.

Suppose we know that Plant A produces 9000 plates per day and that Plant B produces 4500 similar plates per day.

With that information, can we tell which plant is the more efficient producer?

No. The figures tell us how much each plant produces per day but they say nothing about efficiency.

2. From the information given, we know that Plant A produces twice as much as Plant B, but for all we know it may use ten times the resources.

Before we can say that one plant is more efficient than another, we must know not only the output but the _____

Input

3. As a first step in deciding which of two plants is more efficient, we figure the ratio of output to input for each plant to get its production efficiency, or, as it is commonly called, its productivity.

For example, suppose that Plant A produces 9000 plates from inputs that cost a total of $2250 while Plant B produces 4500 plates from inputs totaling $1500. Then we can say: